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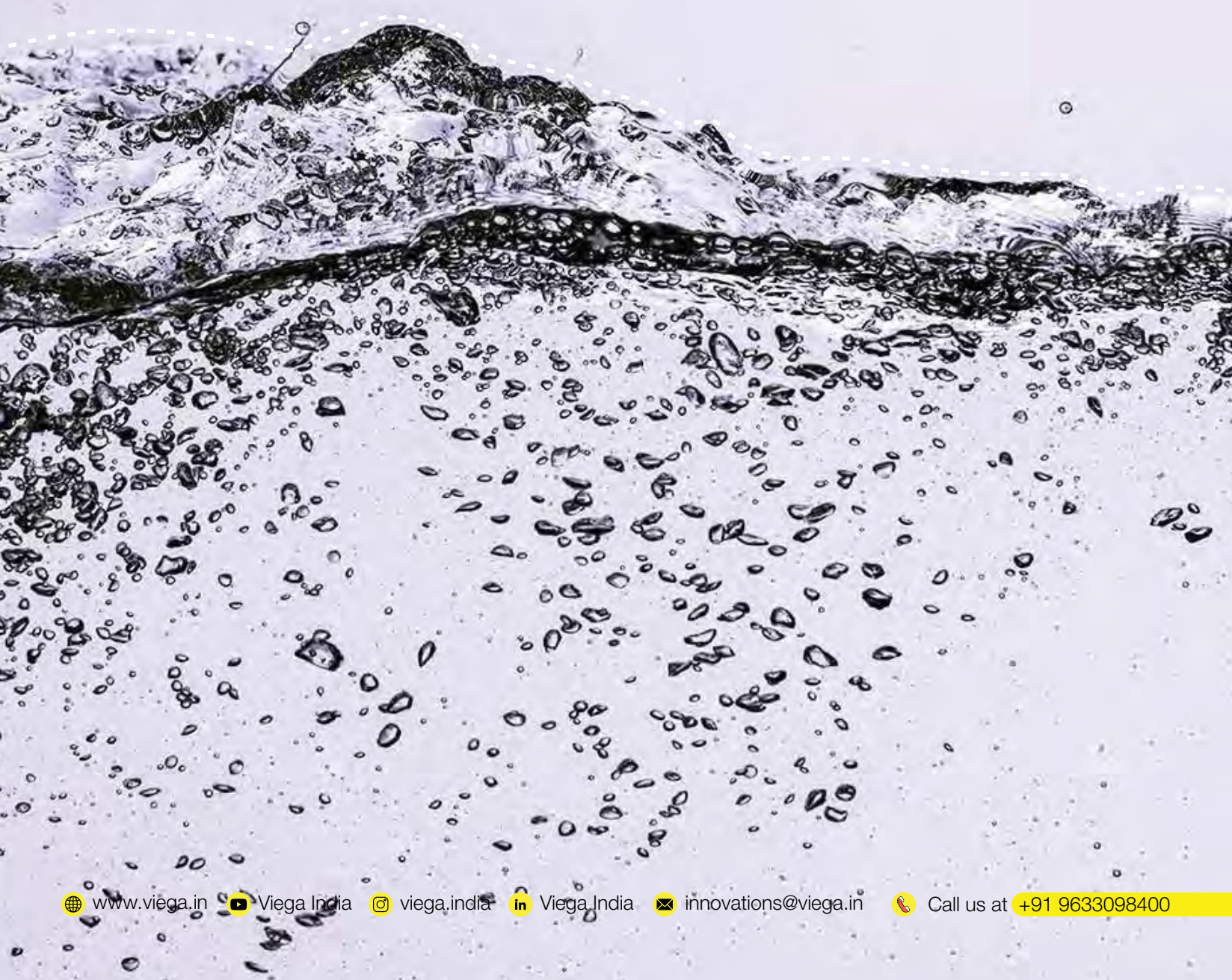

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Editor Ar. Lalichan Zacharias
R.N.I. No.9469/57
lalichanz@gmail.com

Advisors : **Ar. Mukul Goyal**

Printer's Email
arihantdigiprint.offset@gmail.com
krish.graph2021@gmail.com

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EDITOR'S NOTE

Dear Fellow Members of the Indian Institute of Architects,

Wishing you all Merry Christmas!

Its amazing how the time flies. The renewed beginnings of JIIA which started in July has completed the current calendar year already. Looking it at this journey, I am sure it has definitely created an impact amongst all esteemed and inquisitive readers of past JIIA issues. We took a retrospective dive into the rich tapestry of architectural discourse and innovation that has unfolded within the pages of JIIA. Our aim is to celebrate the diverse range of ideas, projects and perspectives that have shaped the architectural landscape in India during this period. The journey of looking at Bharatiya Knowledge Systems and its relevance to all of us in contemporary times, has been much appreciated by our fraternity and we, at JIIA, thank you all for this much-needed appreciation.

Throughout these five issues, we have witnessed a remarkable display of creativity, sustainability and technological advancements in the field of architecture. This exciting journey of showcasing Bharatiya architecture started with depicting the water spiral of Mandu indicating the architectural approach to water conservation and harvesting seen in our first cover page of July issue. We continued this depiction of this Bharatiya rootedness seen in the Maheshwar ghats in August, followed by acknowledgement of Teachers' Day in the form of the *Sarasvati Yantra* in the September issue. October celebrated the Rajasthan Architectural Festival (RAF) by giving the face of Rajasthani architecture to the issue and we celebrated Deepavali with abstract patterns of traditional *rangoli* and the Deepavali lantern. These past five issues have showcased the power of architecture to address social and cultural challenges. Architects have demonstrated their commitment to designing inclusive spaces that foster community engagement, promote accessibility and celebrate local heritage. These projects have not only transformed physical spaces but have also had a profound impact on the lives of the people who inhabit them.

In all these past issues, our contributors have explored a wide range of topics, including urban planning, interior design, landscape architecture and architectural education. Each article, research paper and case study has contributed to the collective knowledge and understanding of the architectural profession.

This journey has its first milestone at the ending of this calendar year with the December issue dedicated to Punjab where we had our national council meeting along with the *Design Symphony* event hosted by IIA Punjab Chapter. This issue has been dedicated to the architecture of Punjab and has covered many aspects through articles, research papers and news report from this vibrant state.

This issue is a testament along the remarkable journey we have undertaken together over these JIIA five issues. It is a celebration of the innovative ideas, sustainable practices and inclusive designs that have shaped the architectural landscape in India. We hope that this retrospective inspires and motivates our readers to continue pushing the boundaries of architectural excellence in the years to come.

Thank you for your continued support and readership.

We wish you a joyful and prosperous new year filled with architectural wonders.

Prof. Vinit Mirkar
Editor

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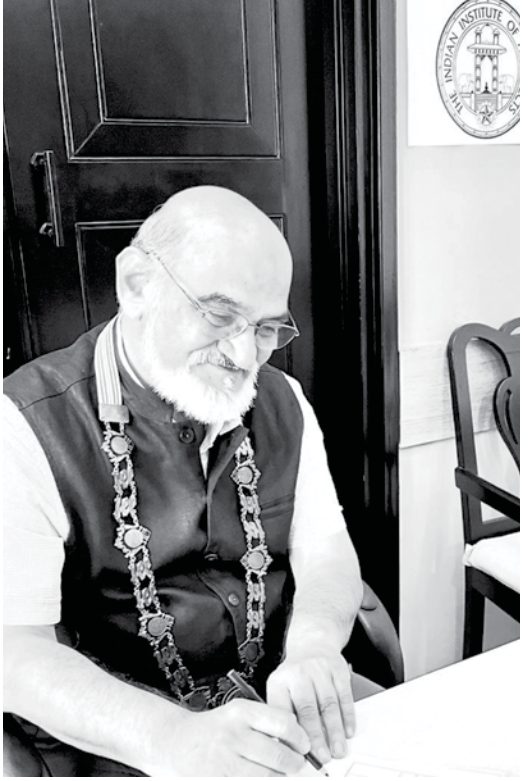

Dear Fellow Members,

The outreach of IIA has to be made strong, where the collaborative exchange of information from Chapters, Centres and Sub-Centres to the National Council and vice-versa is symbiotic. To further strengthen this, the IIA website revamp is almost complete and will be launched soon along with the IIA App.

It is important for all of us to encourage and spread awareness of the platforms of our IIA Commune, IIA podcast, IIA Instagram, among all the young and budding architects, which will help us increase our membership.

Friends, I am really happy to see that all Chapters and Centres are working hard towards more and more events for all our members. Similarly, we also need to involve the general public, as well as government authorities to make them aware of work done by our architectural fraternity.

Soon we will be launching the *IIA Awards for Excellence in Architecture* which will be held this year at Mumbai in the month of March 2024, hosted by IIA Brihan Mumbai Centre. I appeal all members to participate in maximum numbers in this premier award for the built environment in the country. In the month of February, IIAPL will be held at Chhatrapati Sambhaji Nagar (earlier known as Aurangabad) and NatCon at Lucknow.

I also appeal to all the members to register themselves in all IIA events and contribute towards making each one a grand success.

Warm regards,
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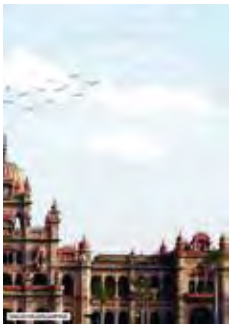

Heritage of Punjab

A Glimpse into Khalsa College, Amritsar

The graphic image for the theme, 'Heritage of Punjab' serves as a visual ode to the rich cultural and historical tapestry of the region. At its heart, the image encapsulates the essence of Punjab through a minimalist lens, focusing on the iconic Khalsa College situated in the historic city of Amritsar. The concept behind this graphic theme is rooted in simplicity, allowing viewers to experience a profound connection with the heritage and legacy of Punjab.

Central to the composition is the majestic Khalsa College building, a venerable institution that stands as a testament to the cultural, educational and architectural heritage of Punjab. The building, with its imposing facade and timeless design, is a symbol of the region's commitment to education and cultural preservation. The pivotal role of Khalsa College is reflected in shaping the intellectual and cultural landscape of Punjab.

A key element in the design philosophy of this graphic theme is minimalism. By paring down extraneous details, the image invites viewers to engage in a contemplative experience, allowing them to appreciate the beauty and significance of Khalsa College without distraction. The deliberate simplicity of the composition encourages a deeper connection with the subject matter, prompting viewers to reflect on the profound historical and cultural legacy encapsulated within the walls of the institution.

To enhance the artistic appeal of the image, an oil painting effect has been applied. This choice of aesthetic treatment adds a layer of timelessness and sophistication, evoking the aura of classical art. The strokes and textures reminiscent of oil paintings infuse the image with an artistic feel, transforming it into more than a mere photograph. This deliberate stylistic choice creates a bridge between the past and the present, echoing the enduring nature of Punjab's heritage.

The use of the oil painting effect also serves to evoke a sense of nostalgia and reverence. The soft blending of colours and subtle brushstrokes contribute to its dreamlike quality, transporting viewers to a bygone era while simultaneously celebrating the enduring legacy of Punjab. The artistic rendering transcends the boundaries of a conventional photograph, inviting viewers to appreciate the image not just as a representation of a place but as a visual narrative that speaks to the soul.

As viewers engage with the graphic theme, they are prompted to explore the layers of history and culture embedded in Khalsa College and, by extension, Punjab. The interplay of light and shadow, a characteristic feature of the oil painting effect, adds depth and dimension to the image, accentuating the architectural nuances of Khalsa College. This interplay serves as a metaphor for the intricate interweaving of tradition and modernity that defines Punjab- a region that cherishes its roots while embracing the dynamics of contemporary life.

In conclusion, the heritage of Punjab stands as a visual homage to the cultural and historical legacy of the region, with Khalsa College as its iconic representation. Through intentional simplicity and the application of an oil painting effect, the graphic theme transcends the realm of mere imagery, inviting viewers on a contemplative journey into the heart of Punjab's heritage. As the image unfolds, it encapsulates the spirit of a place where history, culture, and art converge, offering a timeless glimpse into the soul of Punjab.

Arshdeep Singh is a Fourth Year B.Arch. student at Guru Nanak Dev Engineering College (GNDEC) School of Architecture, Ludhiana, headed by Ar. Akanksha Sharma (A-13368). His passion for design is intricately woven with a love for digital illustration and literature. Arshdeep is inspired by the transformative power of architecture. For him, it is not just about creating structures, but also about translating artistic visions into tangible, functional spaces that enhance the human experience.

Email: ar.arshdeep.s.2002@gmail.com

JIIA Call
for Papers, Articles, Projects

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

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

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

Category 1 : Articles

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

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

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

Category 2 : Student Work

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

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

Category 3 : Contributions from Chapter Correspondents

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

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

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

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

Category 4 : Research Papers

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

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

Category 5 : Cover Design

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

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

Please note:

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

Current topics in Architectural Research on South Asia

Lessons from the Literature of 21st Century

by Sanjeev Vidyarthi and Muhammad Shafaat Nawaz

Abstract

India's architectural fraternity has arguably clocked impressive growth both numerically and institutionally in the opening decades of the 21st century. Reach and presence of the Indian Institute of Architects (IIA), for example, along with the number of schools of architecture has grown substantially across the length and breadth of the vast country even as substantial gaps remain in our understanding of ongoing developments in the broader field. For instance, we do not know who's writing about what aspects of Indian architecture at the global level? And how does that fit with the field's overall development in our surrounding region of South Asia?

This paper tracks the nature and scope of architectural scholarship on South Asia in the 21st century. We do so by conducting a review of publications in leading journals and prominent scholarly presses while identifying important trends and patterns. Contrary to common belief, we find that the recent literature on South Asian architecture is both sizable and diverse, reflecting the region's many rich cultural and historical contexts. In total, we found 176 journal articles and 79 books published on various aspects of South Asian architecture since the year 2000. Covered topics include colonialism, vernacular building traditions, and modernist experiments. Region's architectural heritage is also a recurring theme, with scholars studying ancient temples, colonial structures, and modernist buildings. Emergent focus areas include climate change, energy efficiency, disaster resilience, and shelter policy. We conclude by identifying future pathways potentially useful for young practitioners and scholars of South Asia.

Keywords: *Research topics, Architectural Research, South Asia, Architectural literature*

Introduction

South Asia is one of the most populated parts of the world (Brunn et al., 2016). Countries in this densely inhabited region share many similarities including cultural, climatic, and geographical contexts as well as common colonial history under the British empire. Once these countries emerged as nation-states around the middle of the 20th century, the making of consequent governments and related institutions followed a broadly similar postcolonial trajectory, which included selective adaptation and creation of new linkages with the previous coloniser and rest of the world (King, 1976).

For instance, post-independence pioneers in professions such as architecture, civil engineering and town planning in recently decolonised countries sought to follow the models and approaches invented in North America and Europe, which comprised some of the most urbanised parts of the world, even as South Asian countries were rather slow to urbanise. Most of the South Asian countries also sought professional help from the outside world to build new cities considered vital for national development. For example, the modernist approach to urban planning and architecture shaped Chandigarh designed by Le Corbusier in the 1950s *(Shaw, 2009)*. Similarly, Islamabad, Pakistan's capital city, was planned by C.A. Doxiadis in the 1960s, following modernist principles of urban design (Mahsud, 2008).

Not surprisingly, prevalent ideas and ideologies in Western Europe and North America influenced the development of South Asia's academic institutions in foundational ways. Many members of the first generation of prominent post-independence professionals from these countries, such as Achyut Kanvinde, Charles Correa and B.V. Doshi for example, were trained abroad and subsequently brought then contemporary architectural thinking to South Asia. More important, many South Asian scholars have continued to move to Global North for education and work including academic research even as many scholars born and brought up in the Global North have turned to studying the cities of South Asia over time. In more recent years, South Asia's architectural academe has blossomed with steady growth both in the number of new institutions and students pursuing higher education in the field.

With this background outlining the broad development of South Asian architectural academy–in mind, we turned to study the nature of contemporary academic research in the region. Our main purpose here is to identify the scope and nature of recent writings on architecture published in leading academic journals and prominent scholarly presses published to date in the 21st century. By studying this hitherto unchartered but growing body of literature, we aim to find who is writing and what about South Asia's contemporary architecture. We also seek to uncover current trends and emergent areas of research while offering some suggestions about potential lines of future inquiry.

The next section entitled *Our Approach* (methodology and data*)* explains the nature of examined literature. *What we Found* (descriptive analysis*)* section explains the geographical origin and scholarship of this research alongside the identified research areas. *Prominent Areas of Research Focus* (typological analysis) section presents the breath and diversity of the contemporary literature in the architectural research of South Asia. The final *Discussion* section offers potentially useful insights for future scholars.

Our Approach

This paper employs a combination of literature review and content analysis to examine the growing body of architectural scholarship on South Asia. Scholars often exercise different preferences when it comes to writing and reading, with some favouring books for their ability to provide in-depth explanations and detailed examples, while others prefer research papers for their ability to succinctly present a focused project and key findings. To make this research both inclusive and comprehensive, the most acclaimed venues for publishing books and journals representing a wide variety of positions and perspectives in the field of architecture were identified for review.

We first used search engines to identify globally leading journals and academic presses publishing in the field. Consulting with fellow academic colleagues, we then carefully identified a list of 20 leading journals and a list of seven premier publishers of academic books representing diverse, critical sub-specialisations within the field of architecture. Despite the careful selection of our sampling universe, we recognise that these lists are not exhaustive by any means with many other journals and presses publishing relevant materials as well. However, for the purpose at hand and given the carefully selected list of representative publishing venues, identification of additional publications will not alter the assertions made in this essay but will simply expand the universe of 21st century publications on South Asia further.

We then consulted each volume of the 20 journals from year 2000 to date finding 176 articles (table 1) focusing on South Asia. Moreover, we also found 79 books authored in the same time duration (table 2). Subsequent review of these research papers and books also revealed the diversity of research topics, spatial location of research focus, author's affiliation, and the key area(s) of inquiry.

What we found

Our review of author's affiliation (Figure 1) revealed that research papers are authored almost equally by researchers affiliated with institutions located in South Asia (45%) and those outside the region (41%). This underscores substantial overlap of intellectual interests between the South Asian and international institutions for studying the region. On the other

Table 1: Journal Articles Reviewed
Source: Authors

Sr. No.	Journal	No. of Articles
1.	Architecture Beyond Europe	8
2.	Architectural Design	27
3.	Architectural Engineering and Design Management	8
4.	Architectural Science Review	16
5.	Architecture and Engineering	3
6.	Buildings & Landscapes: Journal of the Vernacular Architecture Forum	2
7.	City, Territory and Architecture	5
8.	Design Studies	4
9.	Engineering, Construction and Architectural Management	13
10.	Fabrications	3
11.	Frontiers of Architectural Research	14
12.	International Journal of Architectural Heritage	17
13.	Journal of Architectural and Planning Research	5
14.	Journal of Architectural Conservation	7
15.	Journal of Architectural Education	8
16.	Journal of Architecture and Urbanism	9
17.	Journal of the Society of Architectural Historians	9
18.	The Journal of Architecture	6
19.	Traditional Dwellings and Settlements Review	10
20.	Enquiry The ARCC Journal of Architectural Research	2
	TOTAL	**176**

hand, scholars affiliated with academy outside South Asia authored more books than those within the region (48% in comparison to 18%). There is, possibly a significant number of book authors (34%) who are independent writers often publishing with specialised presses. This pattern perhaps underlines different motivations for writing research papers and books in architecture in South Asia. While academic researchers may be motivated by job incentives like tenure security and promotion, independent authors perhaps write to share and disseminate their own scholarly research and professional experiences.

The geographical focus of the identified literature reveals another important finding (Figure 2). The research articles with geographical focus upon India dominated the South Asian scholarship on architecture (69%). This dominance could partly be explained by the sheer geographical area and population dominance of India compared to other countries in the region. The scholarship originating from India in this sense exemplifies much of the academic research in the region.

The breaking down of research topics in the literature was also revealing (Figure 3). Books mainly focused on architectural history and theory (72%), which was somewhat expected as books offer wider breadth and depth for writing at detail on such topics. However, among research papers, building design (34%) and construction management (24%) were

Table 2: Books Reviewed
Source: Authors

Sr. No.	Publisher	Books
1	Oxford University Press	18
2	Routledge (Taylor and Francis)	11
3	Mapin Publishing	10
4	Cambridge University Press	3
5	Springer	3
6	Princeton University Press	2
7	Miscellaneous Recognised Publishers	32
	TOTAL	**79**

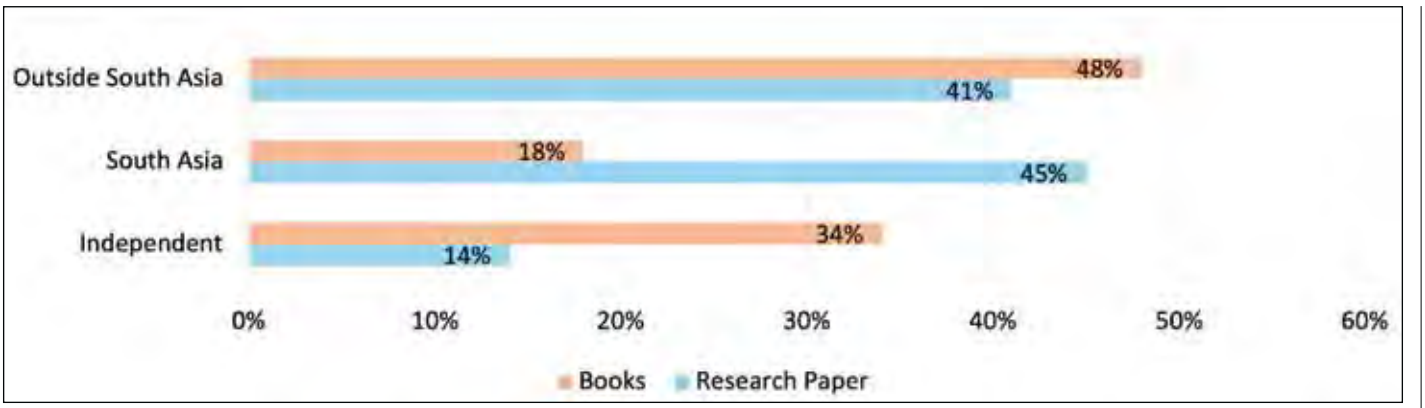

Figure 1: Authors' affiliation
Source: Authors

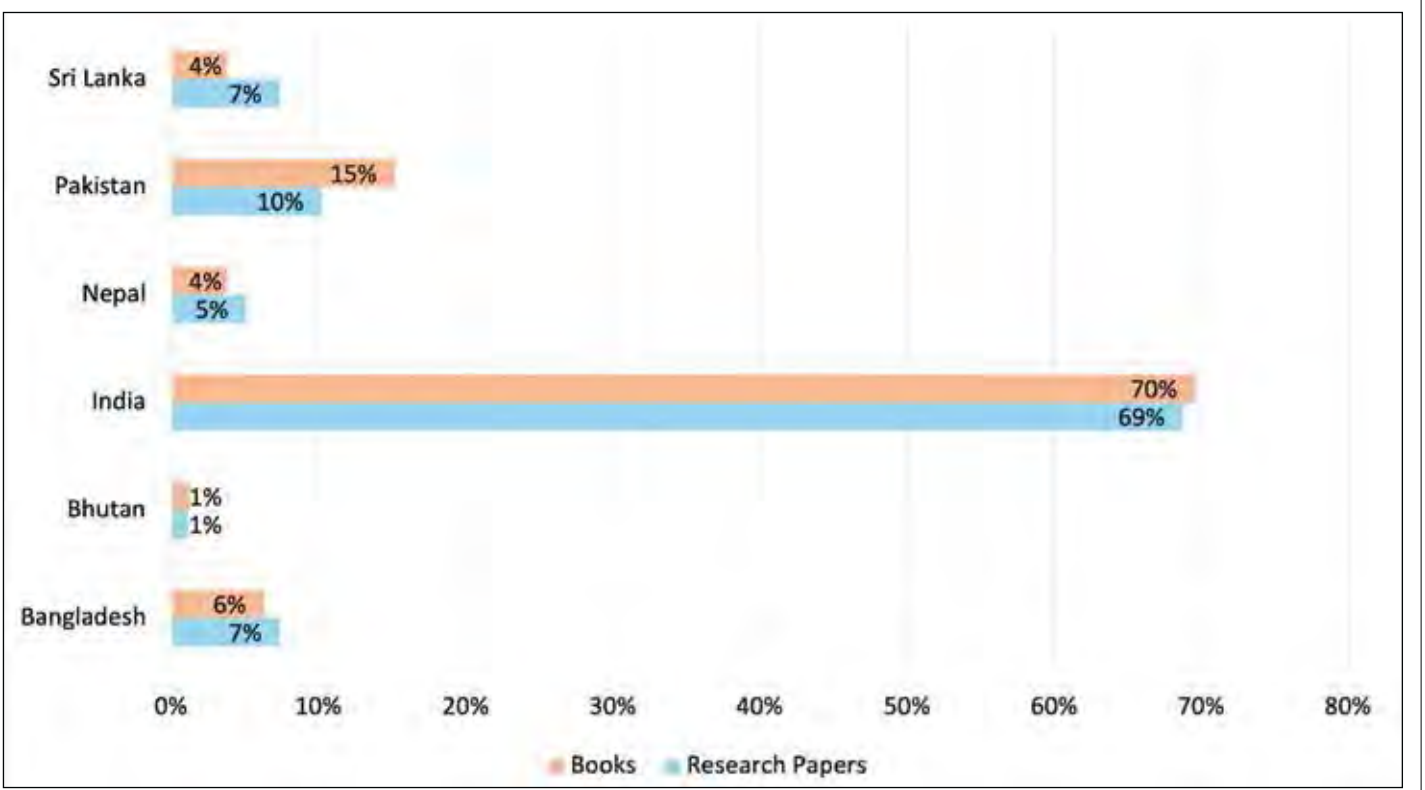

Figure 2: Geographical focus
Source: Authors

the most frequent topics followed by architectural heritage and emergent research topics represented equally (15%).

Investigating the research articles, we found a wide variety of diversity covering many different topics such as building services, energy efficiency, building materials, building information modeling (BIM), acoustics, resilience, social perception, construction management, and thermal comfort (Figure 4). Moreover, other major research areas we found are urban form, architectural heritage, and emergent topics of research such as design methodology, heat island effects, transect and photography, mixed-use spaces, and displacement.

We found distinctive research focus in books compared to the journal articles. Many book authors, for example, focus upon the history and theory of architecture (Figure 5), but they approached this topic in different ways. Some authors focused on modernism, while others examined issues of colonialism and still others explored building design in various settings. Conservation and heritage were also key areas of focus among several books, along with environmental design and socio-spatial analysis, which delved into issues of representation and inclusion. Some books also studied urban form and examined built forms, housing, construction and emerging research on user perception.

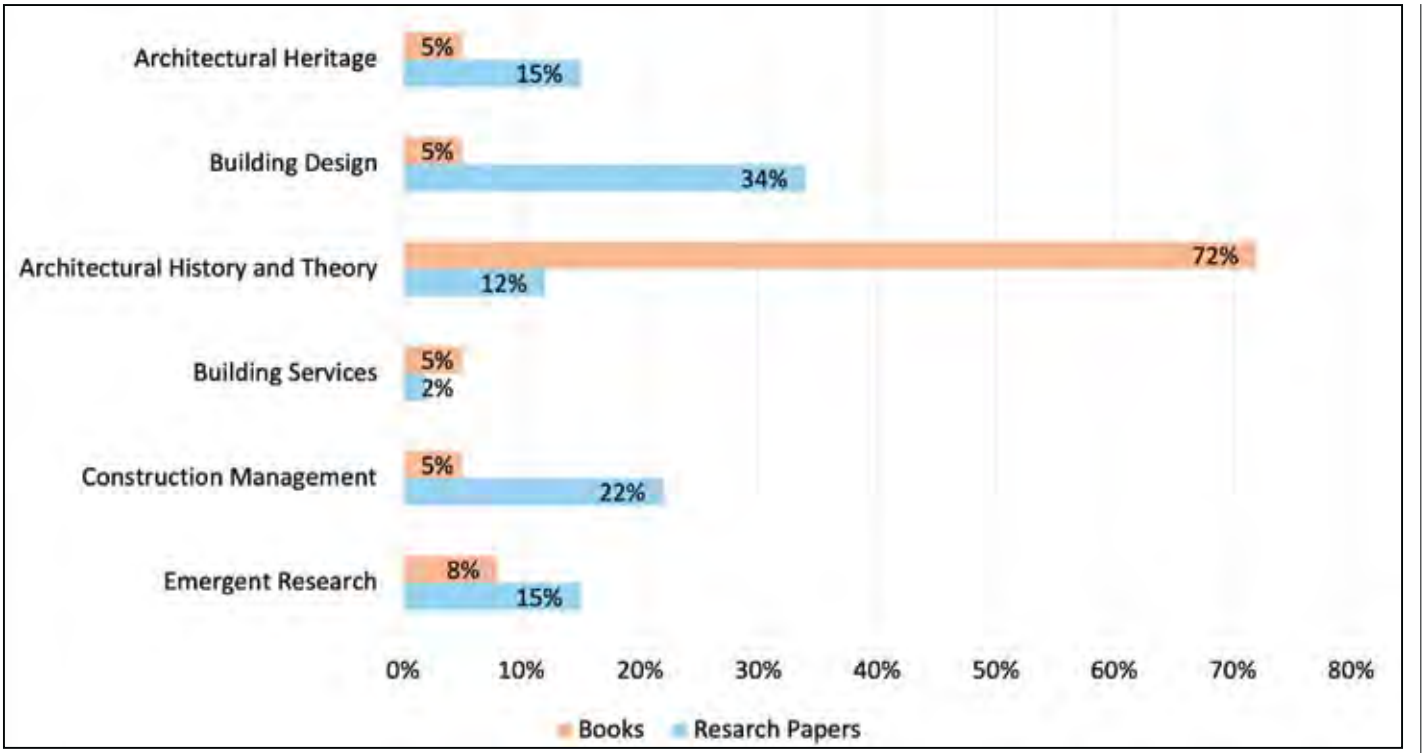

Figure 3: Research topics
Source: Authors

Prominent areas of research focus

South Asian region has a long history of built spaces, many of which are not well studied and documented. The inherent richness of the built environment in the region naturally invites many scholars with diverse research interests and perspectives. The key areas of inquiry within the architectural research in the region, as summarised in table 3, highlight this characteristic diversity. Below we offer some explanatory commentary illustrating each identified area in some detail. However, our analysis should be seen as basic overview tracking a rather complex literature overall.

History and theory of architecture

The history of architecture in South Asia is long and complex, with diverse influences and styles developing and interacting over centuries. From

Figure 4: Research topics covered in reviewed articles
Source: Authors

Figure 5: Research topics covered in reviewed books
Source: Authors

Table 3: Areas of Inquiry in architectural research of South Asia
Source: Authors

	Identified Category	Key Areas of Inquiry
1.	**Architectural History and Theory**	Architecture in the postcolonial era
		Modern / Vernacular architecture
		Theories explaining urban form
		Grounded theory of South Asian architectural history
2.	**Building Design**	Consideration of building ventilation in architectural design
		Experimental building design with innovative use of materials
		Ontological and epistemological analysis of architectural design methodologies
		Building materials and local adaptations
		Participatory, user-centred building design
3.	**Architectural Heritage**	Analysis of building materials in heritage structures
		Living heritage
		Conservation of architectural heritage
4.	**Construction Management**	Efficient project management
		Construction safety and protocols
5.	**Emergent Research**	Architectural space and user perception
		Architectural adaptation to climate change and disaster risk
		Energy efficiency and thermal comfort
		Smart buildings

Mughal palaces to British colonial buildings and from vernacular traditions to modernist experiments, the region's architectural research both reflects this rich patrimony and explores the historical diversity in insightful ways. For example, researchers have studied architectural approach of leading modernist architects employing already in-use materials in inventive ways for experimental building construction (James-Chakraborty, 2014).

Scholarship also explores regionalism in South Asian architecture often sensitive to the climatic and cultural contexts of local places (Haggerty, 2017). Research in this tradition aimed at creating comfortable living spaces that were both energy-efficient and culturally appropriate. Scholars illustrate how global ideas around regionalism were adapted to a wide variety of local contexts. Similarly, vernacular architecture occupies the central foci in several articles. For example, courtyards or chowks, a common feature of traditional houses in South Asia, have been studied as a 'conception of flexible space' facilitating multiple uses and many cultural meanings (Ahmed, 2019).

The influence of history and tradition on South Asian architecture is another recurring theme. For example, M. S. Hossain (2013) examines the Mughal era building and suggests purposeful strategies for integrating these historic edifices with the contemporary urban fabric. Similarly, Pilar Maria Guerrieri (2021) traces the migration and impact of architectural ideas upon South Asian cities.

From this perspective, the impact of colonialism on South Asian architecture remains a persistent theme. Several essays examine the ways in which colonialism shaped the built environment, from the construction of government buildings and railway stations to the development of city building policies. The legacy of colonialism is also evident in continuing tensions between global modernity and local traditions, which are explored in several essays on colonial spaces, practices and edifices (Scriver & Prakash, 2007; Sengupta, 2020; Waits, 2018).

In this sense, literature on the history and theory of architecture in South Asia reveals a rich set of diverse perspectives on the built environment with

many scholars echoing the complex interplay of history, culture, traditions and localised modernities that characterise our region. As architects and urban planners continue to grapple with these challenges, they can (and should) certainly draw inspiration from the insights and ideas presented in this critical literature.

Architectural heritage

South Asia's rich and diverse architectural heritages span many geographies and centuries. From ancient temples to colonial and postcolonial buildings, our region's countless monuments and structures tell variegated tales of near and distant pasts. Thus, not surprisingly, literature explores changing architectural forms and meanings in a wide variety of settings ranging from the pre-colonial (e.g., Haroon et al., 2019) to the late colonial era in informative ways (e.g., Glover, 2008). For instance, the employment of modernism as a post-nationalist political statement via bold and innovative design approaches, which challenge many traditional readings of architecture, stand out as an interesting topic in the literature around architectural heritage (Morshed, 2017).

Focus on building materials frequently shows up in research on architectural heritage. For example, scholars have studied the reasons for cracks and change of color in Taj Mahal's marble (Agrawal, 2002) as well as salt induced efflorescence in the brickwork of Mohenjo-Daro, a world heritage site located in Pakistan (Fodde, 2007). From damage assessments to remediation, researchers have focused upon finding solutions to ensure the safety and longevity of these historic structures. Scholars have considered contextual conditions, building materials and important notions of living heritage when studying South Asia's architectural heritage (Chusid, 2015; Ghosh et al., 2021).

Building design

Scholarship on recent and contemporary architecture in South Asia reflects the rich diversity of many buildings designed intentionally in line with region's history, culture and environment. From traditional techniques to modern methodologies, South Asian architecture seems consistently evolving, adapting to local conditions and responding to global challenges. The literature on the building design covers many themes including building materials, participatory research, design methodology, urban form, thermal comfort, energy efficiency, disaster resilience and shelter policy.

One of the more noticeable aspects of architectural research in South Asia is the focus upon innovative use of building materials, in both the design and construction phases, reflecting the continuing influence of masters like Joseph Stein and Laurie Baker who remained lifelong champions of this cause. For example, literature documents how architects experimented with the following impressive set of applications in the city of Auroville: Modular roofing elements, asbestos roofing sheets, ferrocement structures, mobile roofing, flexible steel structures, rammed earth construction, and more (Kundoo, 2007). Arguably, the inventive use of local materials has been a hallmark of the region's architecture for centuries and contemporary architects, both practicing and researching, have evidently continued to follow this historically rich seam of exploration.

Another key theme is the focus upon participatory design. For example, researchers worked with women in India to identify spatiotemporal 'dark spots' where gender played a role in shaping the sense of safety (Datta & Ahmed, 2020). Scholars also seem grappling with questions of place-based identity, collective memory, and the crucial sense of community. For example, scholars used cognitive analysis to explore the ways in which common people perceive and navigate the city's many urban spaces (Abeynayake et al., 2022). Important, researchers found that in absence of participatory building design, local communities may not adapt to new technological updates in the domain of building materials (Khan & Loke, 2017). Taken together, these studies highlight the growing recognition of participatory building design in South Asia that seeks to involve actual users and local communities for promoting social upliftment and cultural cohesiveness via meaningful design (Nawaz, 2023).

Thermal comfort and energy efficiency are also significant areas of research in building design. Otto Koenigsberger's continuing influence clear to see in this regard (1974). From the thermal comfort in public buildings (e.g., Ramprasad & Subbaiyan, 2017) to vernacular dwelling (e.g., Shastry et al., 2016), authors have not only evaluated the efficiency of building design but also explored energy efficient upgrades to existing buildings (e.g., Dandia et al., 2021). These studies reveal the importance of building design for low-cost, culturally appropriate solutions to address issues of thermal comfort and energy efficiency in the region. Finally, another key theme in building design is disaster resilience. The adaptation of earthquake resilient building design (e.g., Khan & Loke, 2017) and relevant material strategies for navigating housing dispossession (e.g., Pieris, 2017) highlight such instances aimed at improving overall community resilience.

Building services

Our review uncovers how architectural researchers of South Asia are engaging with building services and optimisation in creative ways. In Bangladesh, for example, garment factories have faced consistent criticism for not providing satisfactory working conditions in recent times. In this regard, changing window types and optimising ventilation strategies have been found to have a significant impact on indoor environments and thermal conditions of existing factories *(M. M. Hossain et al., 2017)*.

Another key theme is the focus upon identifying efficient and cost-effective solutions. By considering factors such as insulation, glazing, shading and ventilation, this approach helps designers optimise building envelope performance (e.g., Mohanta et al., 2021). Likewise, studies have also highlighted the use of new technological advancements in building services like automation and data sharing (e.g., Gunatilaka et al., 2021). Such recent literature shows an inclination to the research on building services but as mentioned earlier, this topic seems a bit less represented than other areas of scholarly inquiry.

Construction management

The focus upon design versus focus upon construction among practicing architects is also visible in associated research. While many researchers focused on theoretical aspects of architectural design, a significant number of scholars explored different construction management practices as well.

For instance, some researchers focus on the structural aspect of building construction such as the load-bearing capability of rammed earth walls (Wangmo et al., 2018). Another group of researchers seem interested in optimisation of construction process via the development of a feasible management approach. For example, clear communication and coherent teamwork are reported in the literature as critical for timely completion of construction project within forecasted budget (Senaratne & Ruwanpura, 2016). Likewise, scholars explored the factors influencing the level of accuracy and compromise in overhead estimation for construction projects and argue that overhead costs are often underestimated, leading to project delays and budget overruns (Ahuja et al., 2016).

Finally, construction safety is also a significant concern reported in literature. Researchers have, for example, examined the development of a knowledge-based 'safety culture' instrument for the construction industry. Researchers argue that an overall safety-oriented work culture is essential for reducing accidents and injuries on construction sites (Kumar & Bansal, 2016). Scholars interested in safe construction practices have explored the potential benefit of construction management technique to identify risk factors such as lack of proper training and inadequate equipment (Zahoor et al., 2017).

Emergent research areas

Recent research has apparently started to focus on emerging issues and attendant discourse. For example, recent research draws attention to key strategies adaptated by city administration to tackle the challenges of climate change in local places (Nawaz & Akbar, 2020). Likewise, other scholars have focused on identifying how place-based communities are responding to climate change. The story of Himalayan ice stupa is indeed instructive in this regard. The ice stupa is a climate adaptive water device that communities build to store water in the form of ice, to be used in the subsequent spring season. The stupas are built using simple technology and have been effective in addressing the water scarcity issue in the Himalayan region. This research is a great example of how communities come together to tackle the effects of climate change (Clouse, 2017). Along similar lines, the climate induced phenomenon of urban heat islands (UHIs) has become a significant issue for cities worldwide. Micro- and macro- level studies have been conducted on the effects of green landscapes, building materials and other mitigating factors on UHI (Dwivedi, 2019; M. A. Hossain et al., 2019).

Another emerging research area focuses on the possible impacts and benefits of emerging technological advancements in architecture. For example, scholars have studied smart buildings (SBs) to enumerate key criteria including automation, data sharing, comfort and safety (Gunatilaka et al., 2021). Likewise, the use of building information modeling (BIM) is another example of technological adoption. Researchers have argued that a lack of awareness, training and resources hindered the adoption of BIM in the region at a large scale (Ahuja et al., 2016). Another example of such research is the exploration of the accuracy and access of digital tools for architectural conservation (Rossato et al., 2021).

Discussion

The nature and scope of architecture in South Asia seems marked by an intrinsic diversity that draws upon a wide range of both explicit and implicit influences including regional, Mughal and British colonial styles, vernacular traditions and modernist experiments. Researchers explore various

aspects of this architectural landscape employing a wide variety of lenses such as building materials, regionalism and the impact of colonialism. They also investigate how architectural ideas have traveled over time. Emphasising the importance of key issues like building design, participatory research, energy efficiency and disaster resilience, a growing interest is evident in optimising building services and embracing technological advancements. Little doubt that the 21st South Asian architecture in this sense represents a dynamic tapestry shaped by historical, cultural and environmental influences.

Not surprisingly, contemporary architectural research in South Asia covers a wide range of topics and issues, reflecting the region's diversity and complexity, characterised by many different climatic, cultural, historical and contemporary elements. We also find that the research is gradually evolving towards a better and more detailed understanding of the field, offering new research opportunities. Below we describe five key areas uncovered by our research and potentially useful for future scholars:

***Interdisciplinary research**:* Architectural research in South Asia need pay attention beyond the building envelope and plot boundaries. In line with the growing field, architecture research ought to be interdisciplinary in nature and scope, addressing issues such as gender disparities in the built environment, contemporary design practices reflecting 21st century sensibilities, and intersectionality of different cross-cultural identities and regional nuances. This kind of research work presents many opportunities to grow the field further while offering new ways of understanding the built environment of South Asia.

***Vernacular or so-called southern theory**:* South Asian architectural research has continued to emphasise the importance of vernacular architecture, exploring traditional styles' historical and cultural significance, and promoting the use of local materials to support sustainability and local craftsmanship for much of the post-independence period. The focus upon vernacular building traditions of the region could potentially contribute much more meaningfully across the field, ranging from better building designs to architectural education (Clouse, 2017). Common people and ordinary communities in our vast region tackle a wide variety of challenges on an everyday basis in significant vernacular ways which architectural scholarship can help articulate and theorise.

***Climate change**:* The region's diverse geography presents a wide variety of challenges posed by climate change that require further research to prioritise long-term sustainability and energy efficiency. The emerging challenges of climate change offer many new opportunities for future research, as is evident by increasing number of publications on the issue. Cross-borders research collaborations could be enlightening given that climate change issues are not constrained by political boundaries.

***Technological advancements and architecture**:* The adoption of technology in the building industry offers new opportunities for architecture, with the emergence of smart buildings and data-driven design optimisation to enhance user comfort and sustainability (Gunatilaka et al., 2021). The world is experiencing sophisticated technologies and artificial intelligence systems that are transforming the built environment in significant ways. Amidst this change, there is growing room for research at the intersection of technological change and built environment.

***Architecture for mega public events**:* South Asia's growing global connectivity and potential to host international events like popular sports and global expositions fuel architectural innovation and originality, with a focus on sustainable and accessible facilities and inclusivity in public spaces and buildings. Prominent cities in the region have already seen transition in the built environment for mega events, yet the research has surprisingly missed this avenue.

To summarise and conclude, little doubt that the future of architectural research in South Asia looks rosy overall.

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References

- Abeynayake, T., Meetiyagoda, L., Kankanam, N., & Mahanama, P.K.S. (2022). Imageability and Legibility: Cognitive Analysis and Visibility Assessment in Galle Heritage City. *Journal of Architecture and Urbanism*, *46*(2), 126–136. https://doi.org/10.3846/jau.2022.16177
- Agrawal, O. P. (2002). Assessing the conservation needs of the Taj Mahal. *Journal of Architectural Conservation*, *8*(3), 73–87. https://doi.org/10.1080/13556207.2002.10785328

- Ahmed, A. S. (2019). Inbetween heterotopia and simulacrum: Vernacular language of courtyards in Bangladesh's architecture. *Architecture and Engineering*, *4*(4), 3–11. https://doi.org/10.23968/2500-0055-2019-4-4-03-11
- Ahuja, R., Jain, M., Sawhney, A., & Arif, M. (2016). Adoption of BIM by architectural firms in India: technology–organisation–environment perspective. *Architectural Engineering and Design Management*, *12*(4), 311–330. https://doi.org/10.1080/17452007.2016.1186589
- Brunn, S. D., Hays-Mitechell, M., Zeigler, D. J., & Graybill, J. K. (2016). *Cities of the World: Regional Patterns and Urban Environments* (Sixth). Rowman & Littlefield.
- Chusid, J. M. (2015). The India International Centre of Joseph Allen Stein: A story of cold war politics and the preservation of a modern monument. *Journal of Architectural Conservation*, *21*(2), 71–84. https://doi.org/10.1080/13556207.2015.1083292
- Clouse, C. (2017). The himalayan ice stupa: Ladakh's climate-adaptive water cache. *Journal of Architectural Education*, *71*(2), 247–251. https://doi.org/10.1080/10464883.2017.1340781
- Dandia, G., Sudhakaran, P., & Basu, C. (2021). Evaluation of energy-efficient retrofit potential for government offices in India. *Architecture and Engineering*, *6*(2), 3–17. https://doi.org/10.23968/2500-0055-2021-6-2-03-17
- Datta, A., & Ahmed, N. (2020). Mapping Gendered Infrastructures: Critical Reflections on Violence Against Women in India. *Architectural Design*, *90*(4), 104–111. https://doi.org/10.1002/ad.2597
- Dwivedi, A. (2019). Macro- and micro-level studies using Urban Heat Islands to simulate effects of greening, building materials and other mitigating factors in Mumbai city. *Architectural Science Review*, *62*(2), 126–144. https://doi.org/10.1080/00038628.2019.1578193
- Fodde, E. (2007). Fired brick and sulphate attack: The case of Moenjodaro, Pakistan. *Journal of Architectural Conservation*, *13*(1), 69–80. https://doi.org/10.1080/13556207.2007.10784989
- Ghosh, S., Vardhan, V., & Rajhans, P. (2021). Damage Assessment and Remediation of an Iconic Lime Rendered Building Façade: The Safed Baradari Story. *International Journal of Architectural Heritage*, *15*(8), 1083–1096. https://doi.org/10.1080/15583058.2019.1650134
- Glover, W. J. (2008). *Making Lahore Modern: Constructing and Imagining a Colonial City*. University of Minnesota Press.
- Guerrieri, P. M. (2021). Migrating architectures: Palladio's legacy from Calcutta to New Delhi. *City, Territory and Architecture*, *8*(1). https://doi.org/10.1186/s40410-021-00135-0
- Gunatilaka, R. N., Abdeen, F. N., & Sepasgozar, S. M. E. (2021). Developing a scoring system to evaluate the level of smartness in commercial buildings: A case of Sri Lanka. *Buildings*, *11*(644). https://doi.org/10.3390/buildings11120644
- Haggerty, M. (2017). A Tropicalist Turn: Architectural Perspectives on Regionalism from Housing in Dhaka. *Fabrications*, *27*(2), 231–258. https://doi.org/10.1080/10331867.2017.1296315
- Haroon, F., Nawaz, M. S., Khilat, F., & Arshad, H. S. H. (2019). Urban Heritage of the Walled City Of Lahore: Critical Analysis and the Way Forward for Policy. *Journal of Architectural and Planning Research*, *36*(4), 289–302.
- Hossain, M. A., Shams, S., Amin, M., Reza, M. S., & Chowdhury, T. U. (2019). Perception and barriers to implementation of intensive and extensive green roofs in Dhaka, Bangladesh. *Buildings*, *9*(79). https://doi.org/10.3390/buildings9040079
- Hossain, M. M., Lau, B., Wilson, R., & Ford, B. (2017). Effect of changing window type and ventilation strategy on indoor thermal environment of existing garment factories in Bangladesh. *Architectural Science Review*. https://doi.org/10.1080/00038628.2017.1337557
- Hossain, M. S. (2013). Strategies to integrate the Mughal settlements in Old Dhaka. *Frontiers of Architectural Research*, *2*, 420–434. https://doi.org/10.1016/j.foar.2013.08.002
- James-Chakraborty, K. (2014). Reinforced concrete in Louis Kahn's National Assembly, Dhaka: Modernity and modernism in Bangladeshi architecture. *Frontiers of Architectural Research*, *3*, 81–88. https://doi.org/10.1016/j.foar.2014.01.003
- Khan, M. A., & Loke, L. (2017). A Nexus of Social Justice, Tradition and Disaster Risk Reduction in Balakot, Pakistan: Fostering Independence or Dependence? *Traditional Dwellings and Settlements Review*, *29*(1), 63–82.
- King, A. D. (1976). *Colonial Urban Development: Culture, Social Power and Environment*. Routledge.
- Königsberger, O., Ingersoll, O. H., & Mayhew T. G. (1974). *Manual Of Tropical Housing & Building*. Orient Longman Private Limited.
- Kumar, S., & Bansal, V. K. (2016). A GIS-based methodology for safe site selection of a building in a hilly region. *Frontiers of Architectural Research*, *5*(1), 39–51. https://doi.org/10.1016/j.foar.2016.01.001
- Kundoo, A. (2007). Auroville: An Architectural Laboratory. *Architectural Design*, *77*(6), 50–55. https://doi.org/10.1002/ad.557
- Mahsud, A. Z. K. (2008). *Constantinos A. Doxiadis' plan for Islamabad: the making of a "City of the Future" 1959-1963* (Issue April). Katholieke Universiteit Leuven.
- Mohanta, A., Das, S., & Mohanty, R. N. (2021). Building envelope trade-off method integrated with BIM-based framework for energy-efficient building envelope. *Architectural Engineering and Design Management*. https://doi.org/10.1080/17452007.2021.1941741
- Morshed, A. (2017). Modernism as Postnationalist Politics: Muzharul Islam's Faculty of Fine Arts (1953-56).

Journal of the Society of Architectural Historians, *76*(4), 532–549. https://doi.org/10.1525/jsah.2017.76.4.532

- Nawaz, M. S. (2023). Call for A Shift in Intellectual Standpoint: From Positivist Rationalism to Adaptive Action. In N. Javed & M. S. Nawaz (Eds.), *Power, Profits and Plans: The Political Economy of Housing in Pakistan* (pp. 226–245). Pakistan Institute of Development Economics. https://pide.org.pk/research/power-profits-plans-the-political-economy-of-housing-in-pakistan/
- Nawaz, M. S., & Akbar, S. (2020). Is Lahore's urban system ready to sustain climate change? The case in Pakistan. *European Journal of Climate Change*, *2*(2), 22–32. https://doi.org/10.34154/2020-EJCC-0202-22-32/euraass
- Pieris, A. (2017). Dwelling in ruins: Affective materialities of the Sri Lankan civil war. *Journal of Architecture*. https://doi.org/10.1080/13602365.2017.1363265
- Ramprasad, V., & Subbaiyan, G. (2017). Perceived indoor environmental quality of classrooms and outcomes: a study of a higher education institution in India. *Architectural Engineering and Design Management*. https://doi.org/10.1080/17452007.2017.1287050
- Rossato, L., Massai, P., Maietti, F., & Balzani, M. (2021). Digital Tools for Documentation and Analysis of Vernacular Cultural Heritage in Indian City Centers. *International Journal of Architectural Heritage*, *15*(6), 931–941. https://doi.org/10.1080/15583058.2019.1683778
- Scriver, P., & Prakash, V. (2007). Colonial modernities: Building, dwelling and architecture in British India and Ceylon. In *Colonial Modernities: Building, Dwelling and Architecture in British India and Ceylon*. Routledge. https://doi.org/10.4324/9780203964262
- Senaratne, S., & Ruwanpura, M. (2016). Communication in construction: a management perspective through case studies in Sri Lanka. *Architectural Engineering and Design Management*, *12*(1), 3–18. https://doi.org/10.1080/17452007.2015.1056721
- Sengupta, T. (2020). Papered spaces: clerical practices, materialities and spatial cultures of provincial governance in Bengal, Colonial India, 1820s–1860s. *Journal of Architecture*, *25*(2), 111–137. https://doi.org/10.1080/13602365.2020.1733861
- Shastry, V., Mani, M., & Tenorio, R. (2016). Evaluating thermal comfort and building climatic response in warm-humid climates for vernacular dwellings in Suggenhalli (India). *Architectural Science Review*, *59*(1), 12–26. https://doi.org/10.1080/00038628.2014.971701
- Shaw, A. (2009). Town planning in postcolonial India, 1947-1965: Chandigarh re-examined. *Urban Geography*, *30*(8), 857–878. https://doi.org/10.2747/0272-3638.30.8.857
- Waits, M. R. (2018). Imperial Vision, Colonial Prisons: British Jails in Bengal, 1823-73. *Journal of the Society of Architectural Historians*, *77*(2), 146–167. https://doi.org/10.1525/jsah.2018.77.2.146
- Wangmo, P., Shrestha, K. C., Miyamoto, M., & Aoki, T. (2018). Assessment of out-of-plane behavior of rammed earth walls by pull-down tests. *International Journal of Architectural Heritage*. https://doi.org/10.1080/15583058.2018.1433903
- Zahoor, H., Chan, A. P. C., Gao, R., & Utama, W. P. (2017). The factors contributing to construction accidents in Pakistan: Their prioritisation using the Delphi technique. *Engineering, Construction and Architectural Management*, *24*(3). https://doi.org/10.1108/ECAM-01-2016-0027

Prof. Sanjeev Vidyarthi (A09908) is the head of the Department of Urban Planning and Policy (UPP) at the University of Illinois Chicago (UIC). He has authored several books and journal articles exploring the city planning and design scene in contemporary India.
Email: svidy@uic.edu

M Shafaat Nawaz is a doctoral student at UPP. He studies literatures around economic geography, global value chains and the bazaar economy to understand and explain the formation and development of informal industrial clusters in South Asian cities.
Email: mnawaz5@uic.edu

RESEARCH PAPER

Mitigating Urban Heat Island Effect in Punjab's Urban Expansion:

Critical Need for Awareness to Stakeholder of All Institutions of Development

by Prof. Akanksha Sharma and Dr. Karamjit Singh Chahal

Abstract

This research explores the transformative journey of Punjab, India, navigating a shift from an agricultural hub to a service-centric economy through rapid urbanisation. With a population of 31 million, the 2011 census indicates that Punjab's urban areas burgeoned to 37.49%. The study delves into the comprehensive impacts of urbanisation on albedo, unveiling often-overlooked climatic consequences, especially the escalating Urban Heat Island (UHI) effects. UHI leads to a rapid temperature rise in urban areas compared to rural surroundings. Unplanned urban expansion and the transformation of green spaces into hard surfaces alter microclimates, making cities prone to adverse living conditions, encompassing discomfort, heat waves, and health problems. Utilising spatial analysis, the study identifies urban land trends and evaluates ensuing climatic shifts. The research emphasises the critical need foreffective communication of scientific knowledge to urban planners, architects, engineers, and governmental agencies. By unveiling architectural imperatives, the study contributes to the need of mitigating UHI effects in Punjab. The aim is to highlight the urgent need for tools and guidelines, underscoring the vital role of urban planners and architects in understanding the impact of urbanisation on the microclimate. This contributes to crafting more manageable, livable, and comfortable urban environments at the micro level.

Key Words: *urban heat island, heat waves, urbanisation, microclimate*

1. Introduction

1.1 urbanisation

Between 1971 and 2011, India experienced a 4.6-fold increase in urban population, surpassing the 2.8-fold growth in the total population. The decadal growth rate of urban population exceeded 30% from 1971 to 2011, driven by economic reforms initiated in 1991 (Census of India 2011). In 2011, out of India's total population of 1119 million, 377 million lived in urban areas, constituting 28% of the population. The percentage of urban population rose significantly from 10.84% in 1901 to 31.16% in 2011. Among other states, Tamil Nadu led in urbanisation with a 43.9% urban population, followed by Maharashtra and Gujarat. In 1991, Maharashtra had a 38.7% urbanisation rate, Gujarat followed, and Tamil Nadu ranked third at 34.2%. Punjab, Haryana, and Tamil Nadu saw an increase in urban proportion from 1991 to 2001 (Rashid, et al, 2022). In 2001, Punjab had a 34% urban population, and Haryana stood at

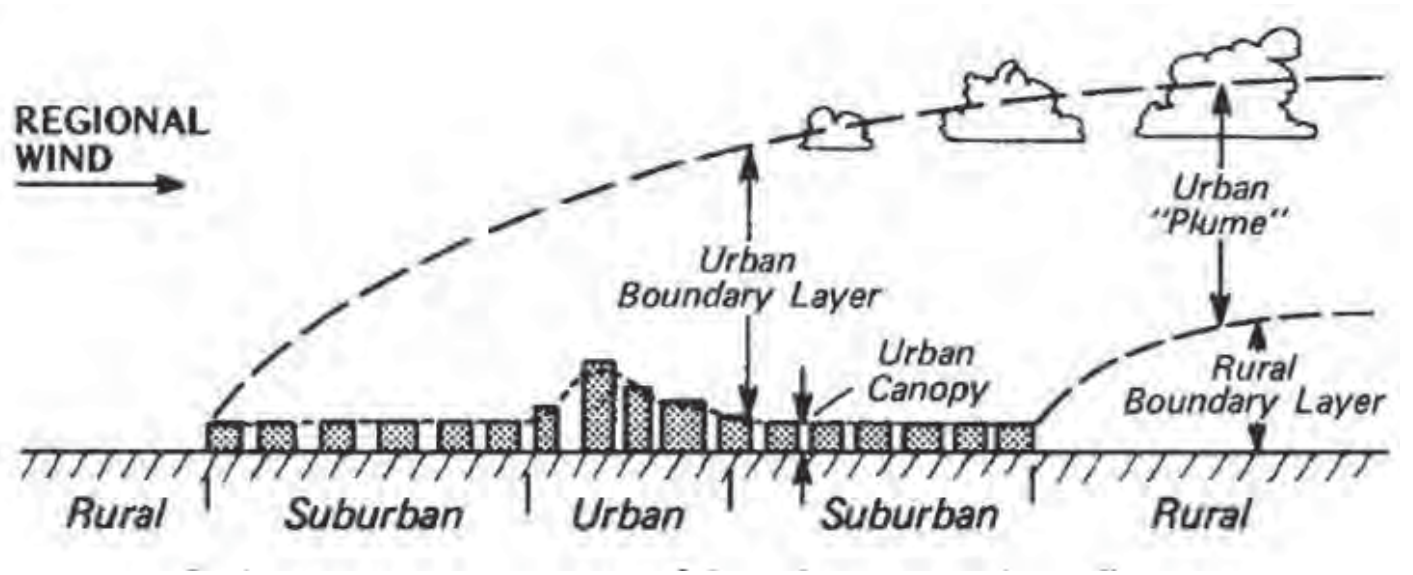


Fig. 1 : Schematic of urban canopy layer and urban boundary layer
Source: Oke, 1995

29%, driven by rapid growth in cities like Faridabad and Gurgaon. Other states, including Maharashtra, Karnataka, and Gujarat, experienced over a 2% increase in urbanisation, while Andhra Pradesh, Bihar, Rajasthan, and West Bengal had lower rates. This discussion aims to underscore the pressing need for developing tools and guidelines, emphasising the pivotal role of urban planners and architects in comprehending the nuanced impact of urbanisation on the microclimate.

1.2 Urbanisation impact climate

There is no doubt that urbanisation brings numerous positive effects to cities, such as an enhanced standard of living, increased local economic growth, career opportunities and advancements in infrastructure, science and technology. However, the unplanned expansion and heightened urban density in cities have led to negative consequences, including pollution, inadequate infrastructure, resource depletion, substandard living conditions and environmental degradation. The unchecked rise in urban density has resulted in significant changes in the microclimate of cities (Sadhashivam & Shahla, 2016). Accompanied by the expansion of urban land use, this unchecked growth replaces green spaces with high-emissivity surfaces, altering runoff and albedo characteristics (Helbling & Meierrieks, 2022). Consequently, this transformation contributes to an increase in the temperature of urban developments compared to the surrounding rural areas, leading to the phenomenon known as the Urban Heat Island (UHI) Effect. Luke Howard (1818) initially observed this concept in 1818, and the UHI Effect describes the temperature rise in built-up urban areas in contrast to their rural surroundings.

1.3 Urban Heat Island

In the contemporary context, various cities and towns, regardless of size, give rise to UHI with differing intensities, influenced by how their land surfaces interact with heat. According to Oke's research (1995), the intricate climate pattern within urban areas is elucidated through three key scales: Micro scale climate, Meso scale climate, and Local scale climate. The first layer, Surface Urban Heat Island (SUHI), is shaped by immediate surroundings and surface characteristics. The second layer, Atmosphere Urban Heat Island (AUHI), is contingent upon urban land use and further breaks down into Canopy Layer Urban Heat Island (CLUHI) and Boundary Layer Urban Heat Island (BLUHI) Voogt and Oke (2003) refined AUHI into two layers, with CLUHI observing elevated temperatures within urban vegetation and BLUHI occurring in the lowest layer of the Earth's atmosphere, where surface-air interactions significantly impact weather conditions (Fig.1). Recognising diverse UHI types is crucial for devising effective mitigation strategies due to their distinct origins, characteristics, and effects. The characteristics formation of UHI, measurement techniques, and the impact of these methods vary from one another.

1.4 Causes of Generation of Urban Heat Island Effect

The Urban Heat Island (UHI) effect arises from a combination of natural and man-made factors that contribute to the generation and retention of heat within urban environments (Oke, 1995).

- *Natural Factors*: these are inherent characteristics that cannot be altered like tropical climates, cities experience heat due to constant exposure to solar radiation during the summer. Parameters such as longitude, latitude and climate play a significant role in microclimates.
- *Man-Made Factors*: Unplanned, haphazard or poorly planned urban expansion development. Poorly planned urban expansion contributes to the UHI effect, urban land use surface treatment, urban geometry, anthropogenic heat generation, etc.

It's essential to note that while natural factors like climate conditions are inherent and unalterable, man-made factors can be modified through proper planning. Therefore, addressing aspects such as urban development, land use, and human activities can mitigate the intensity of the UHI effect.

1.5 Techniques to measure Urban Heat Island effect

Various techniques play a crucial role in measuring the UHI effect, capturing nuanced temperature variations between urban and non-urban areas. Stationary field measurements involve fixed data collection points strategically positioned throughout the urban landscape, providing localised temperature data. Portable weather stations enhance flexibility, allowing for on-the-spot temperature monitoring at specific locations. Mobile Traverses, pioneered by climatologist Tony Chandler (1965), use sensor-equipped vehicles to traverse urban areas, providing dynamic and geographically detailed temperature information. Combining stationary and mobile surveys offers a comprehensive approach to understanding UHI dynamics across varying spatial scales (Oke, 2003).

Numerical modeling studies leverage sophisticated computational models to simulate and analyse UHI patterns. These models consider complex interactions between various factors influencing temperature variations, contributing to a detailed understanding of UHI dynamics. Remote sensing studies, utilising satellite and aerial imagery, offer a broad-scale perspective, capturing temperature data across extensive urban areas. Parametric studies explore the impact of specific urban characteristics, such as land use and vegetation, on UHI intensity.

2. Methodology

- *Phase 1 - Data Analysis and Relationship Exploration:* In the initial phase, the research conducts a detailed examination of the expansion of urban development within the Punjab region. This analysis involves correlating these urbanisation trends with comprehensive weather data obtained from census records and various weather reports. The research employs meticulous analytical techniques to unravel the intricate relationships between urbanisation and their consequent effects on climate specifically with the elevated urban temperature.
- *Phase 2 - Identification of Research Gaps and Mitigation Strategies:* The second phase involves a comprehensive discussion and analysis of the findings from the initial data exploration. Recommendations for mitigation strategies emphasise the need for targeted and effective measures to address the challenges posed by urbanisation-induced climatic changes.
- *Phase 3 - Concluding Insights:* The final phase encompasses a conclusive analysis summarizing the key insights derived from the research. The conclusion provides a synthesis of the relationships uncovered between urbanisation, land use transformation, and climatic variations in Punjab. It highlights the significance of the identified research gaps and emphasises the urgency of implementing the recommended mitigation strategies.

3. Study Area: urbanisation and its Impact on the Climate in Punjab

Punjab, situated in India's northwest, holds a pivotal position in the nation's food security despite its modest size, covering less than 2 percent of the country's landmass and hosting just over 2 percent of the population. The state's geographical boundaries have undergone shifts, leading to the present-day division into Malwa, Majha, and Doaba regions, each contributing to Punjab's diversity (Chow, et al, 2012).

Fig. 2 : Map of Punjab
Source: Google maps

Notably, the state has played a central role in India's Green Revolution, with Doaba being a fertile region crucial to agricultural growth (Fig 2).

3.1 urbanisation pattern

The urbanisation trend in Punjab has been marked by significant rural-to-urban migration, propelling the urban population from 33.9 percent to 37.5 percent between 2001 and 2011 (Census of India 2011). This surge underscores the state's robust infrastructure, ranking first in India, and reflects rapid mordenisation and urban development. The division of Punjab into regions like Malwa, Majha and Doaba further adds to the diversity of urbanisation patterns, with major cities like Ludhiana, Amritsar, and Jalandhar contributing significantly to the state's urban landscape

Geographically, Punjab covers 50,362 square kilometers, constituting 1.53 percent of India's total land. The state's boost in agro-processing activities post the 1960 Green Revolution has led to increased investment in agricultural and agro-based industries. Punjab's urban population surpassed the national average, reaching 33.92 percent at the beginning of the twenty-first century, making it the fourth most urbanised state in India.

Over the past five decades, the urban population in Punjab has quadrupled, contrasting with the state's overall population growth of two and a half time. The implementation of the green revolution and the adoption of labor-saving agricultural technologies have led to a continuous decline in the rural population. In 1971, 76.27% of the total population resided in rural areas, but by 2011, this proportion had decreased to 62.51%. In contrast, the urban population in Punjab has experienced a steady rise. In 1971, the urban population accounted for 23.73% (3.22 million) of the total, increasing to 37.49% by 2001(Census of India 2011) [Table 1].

Examining the growth of urban population according to town classifications, Class I towns played a substantial role, contributing 58 percent to the urban population of the state. The increase in Class I cities from 3 in 1951 to 17 in 2011 indicates the state's urban expansion. urbanisation in Punjab, viewed as a positive manifestation of economic development, has witnessed significant growth over the last century and a half, with the urban population increasing fourfold in the last 50 years. [Table 2].

Notably, nearly half of Punjab's urban population resides in specific towns and cities, such as Jalandhar, Amritsar, SahibzadaAjit Singh Nagar and Ludhiana. Ludhiana alone hosts 19.86 percent of the state's urban residents. This concentration emphasises the regional disparities in Punjab's urban development. The district of SAS Nagar stands out as the second most urbanised in the state.

Table 1: Punjab Urban and rural population Source: Census data on Punjab's population from 1971 to 2001
Source: Series-4, Final Population Totals. The 2011 Census contributes to the Provisional Population Totals.

Year	Rural Population (in millions)	Urban Population (in millions)	Total Population (in millions)	Rural Population (as a percentage of total population)	Urban Population (as a percentage of total population)
1971	10.33	3.22	13.55	76.27	23.73
1981	12.14	4.65	16.79	72.32	27.68
1991	14.29	5.99	20.28	70.45	29.55
2001	16.1	8.26	24.36	66.08	33.92
2011	17.32	10.3	27.7	62.51	37.49

Table 2: Trend of Different Classes of Towns in Punjab: Percentage of population according to size class of towns
Source: Census of India, 2011

Year	Class I	Class II	Class III	Class IV	Class V	Class VI	Total
1951	33.11	7.73	26.17	14.44	13.18	5.37	100
1961	38.25	10.15	28.11	10.44	10.38	2.67	100
1971	40.52	15.84	22.2	13.32	6.84	1.28	100
1981	46.38	14.39	20.24	11.28	6.5	1.21	100
1991	54.16	19.91	12.92	10.82	1.72	0.47	100
2001	58.38	16.45	12.5	9.82	2.52	0.33	100
2011	58.05	16.11	13.21	8.37	3.51	0.72	100

It can be seen that Punjab's urbanisation story is one of dynamic shifts, propelled by agricultural growth, industrialisation, and modernisation. The state's urban landscape reflects not only economic progress but also reveals disparities in growth rates and regional concentrations, providing valuable insights into the multifaceted nature of urbanisation in Punjab.

3.2 Punjab's Climate Dynamics

Punjab, situated in the north-eastern part of India, exhibits a climatic profile characterised by extremes, influenced by its proximity to the Himalayan foothills. The region experiences a tripartite climatic division into summer, monsoon, and winter, supplemented by transitional phases, which intricately impact its ecological and agricultural systems (Basawaraja, et al, 2011). Summer, spanning mid-April to June, initiates with a gradual temperature rise from February. Concurrently, the monsoon season, vital for the state's agrarian landscape, commences in early July, witnessing precipitation levels ranging from 250 to 1000. The winter season, spanning from early December to February, manifests with nocturnal temperatures plummeting to 5 degrees and diurnal temperatures hovering around 12 degrees. Additionally, there is a Post-Monsoon or Transition Season from September to early November.

3.3 Recent Climate Change Vulnerabilities in Punjab

The uncontrolled and disorganised surge in population growth has presented the state with intricate challenges in urban development. On a macro level, the region grapples with a range of critical environmental issues, including global warming, air pollution, biodiversity loss, soil and water contamination, and sudden climatic variations. At the micro level, the increasing trend of urbanisation has led to the substantial conversion of green spaces within urban developments into impermeable surfaces, exacerbated by anthropogenic heat generation, building envelope materials and building geometry. This transformation impedes heat absorption while promoting heat generation through anthropogenic sources and urban geometry, thus intensifying the UHI effect in urban environments (Valsson & Bharat, 2009). The resulting persistent rise in microclimate temperatures directly impacts the well-being of urban inhabitants, creating an unhealthy living environment. These overarching challenges underscore the intricate interplay of ecological factors, emphasizing the urgent need for comprehensive and sustainable environmental management strategies to alleviate the adverse impacts on the region's ecosystems and human well-being.

3.4 The Punjab State Climate Change Knowledge Centre Report

The Punjab State Climate Change Knowledge Centre (PSCCKC) housed within the Punjab State Council for Science and Technology (PSCST), addresses regional climate change challenges by providing essential information to policymakers, the scientific community, and the general public (PSCST & GIZ, 2015). A recent climate change vulnerability assessment, conducted in 22 districts using 15 indicators aligned with the National Framework of the Department of Science and Technology (DST), revealed Tarntaran's very high vulnerability, followed by eight districts with high vulnerability and another eight with medium vulnerability. The remaining five districts demonstrated low vulnerability.

- The increase is likely to be higher in the post-monsoon period (October to December) ranging between 30 - 63.9%, with precipitation increasing from east to west
- In the winter period (January-February), the precipitation shows a decrease in most areas of the state by upto 21.8%with respect to base line
- In the pre-monsoon period (March to May), all parts of Punjab are likely to experience a mixed trend, with change ranging between -4.7 to 29.1% with respect to base line [Fig 3].

3.5 Department of Climate Change and Agricultural Meteorology at Punjab Agriculture University, Ludhiana Report

Punjab State Council for Science and Technology (PSCST) research project report on the *Agro climatic*

Fig. 3 : Categories of vulnerability of the districts in Punjab
Source: pscst.punjab.gov.in

Table 3: Temperature Variability in Punjab *Values represent the actual ranges from lowest to highest in different areas of the state.
Source: India Meteorological Department (IMD)

Time Period	1951-1960	1961-1970	1971-1980	1981-1990	1991-2000	2001-2010	2011-2018
Annual maximum temperature (^{0}C)	29,1-31.7*	28,9-31.5	28.9-31.4	28.6-31.3	28.6-31.3	29.2-31.9	29.1-31.9
Annual minimum temperature (^{0}C)	16.2-17.2	15.5-16.6	15.4-16.5	15.6-17.0	15.8-17.1	16.3-17.6	16.2-17.5
Annual diurnal temperature range (^{0}C)	12.9-14.5	13.9-`4.9	14.8-16.6	14.5 - 16.0	14.2 - 15.7	14.4 - 15.0	15-16

Atlas of Punjab: Trends *and Projections* based on observations spanning the last seven decades, identifies notable shifts in temperature patterns. The maximum and minimum temperatures from 1961 to 1999 exhibited a cooling trend compared to the preceding decade (1951-60) as shown in Table 3. However, a distinct warming trend emerged from the

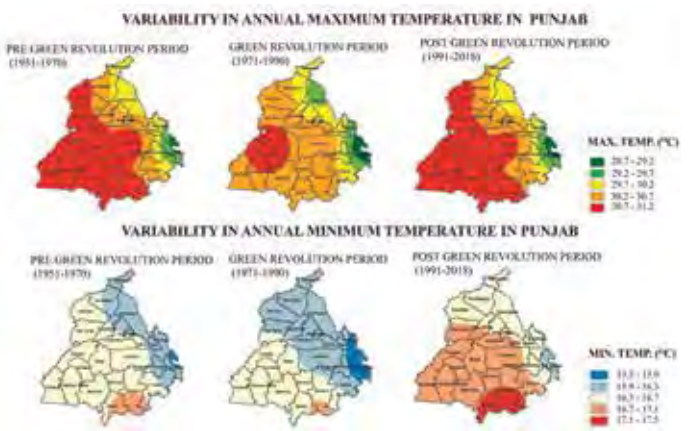


Fig. 4 : Climate changes observed in Punjab
Source: pscst.punjab.gov.in

year 2000 onward. This temperature trend is evident in the diurnal temperature range which increased during 1961-1999 and then subsequently declined after 2000. These findings underscore the dynamic nature of temperature fluctuations in the region, with discernible changes over the decades. (Fig 4).

3.6 Indian Meteorological Department's analysis

Punjab has witnessed a consistent temperature rise. In 2010, maximum and minimum temperatures increased by 0.5-1.0°C compared to the 1971-2000 baseline. Spatial variations in precipitation have occurred, with some periods experiencing excess rainfall and others facing deficits.

Projections for the mid-century (2021-2050) indicate an expected increase in the annual mean maximum temperature by 1.0-1.8°C across Punjab, with a potential further rise to 4.0-4.4°C by the century's end. The annual mean minimum temperature is also projected to climb, reaching 1.9-2.1°C by mid-century and potentially increasing to 4.4-5.1°C by the end of the century (Jerath, et al, 2014).

Precipitation projections suggest an overall increase of 13.3%-21.5% in the mid-century (2021-2050) compared to the 1961-1990 baseline. Seasonally, the monsoon period (June to September) may experience an 11.5-20.8% rise, while the post-monsoon period (October to December) could see a 30.0-63.9% increase, varying from east to west. Winter (January-February) may witness a precipitation decrease of up to 21.8%, and the pre-monsoon period (March-April-May) may show mixed trends, ranging from -4.7% to 29.1% relative to the baseline. (Fig 5).

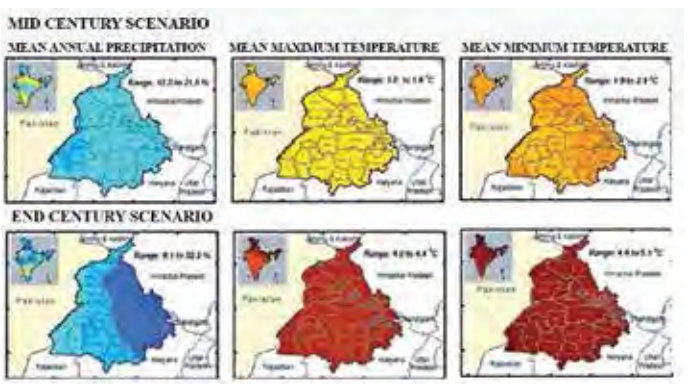


Fig. 5 : Anticipated alterations by mid-century (2021-2050) and the close of the century (2071-2098)
Source: Indian Meteorological Department report

3.7 Climate Resilient Green Growth Strategies for Punjab Report

Climate Resilient Green Growth Strategies (CRGS) implemented by Teri Energy Institute (TERI) in collaboration with Global Green Growth Institute (GGGI) report and analyse the climate model employed in the study (TERI, 2017; CRGGS, 2015). This reveals an overall warming trend within the study area in the near future. For the 2021–50 period, the projected annual mean temperature is expected to increase by 1.2–1.4°C compared to the baseline of 1971–2000. Similarly, the mean annual minimum temperature (Tmin) is projected to rise within the

range of 1.2–1.4°C across the study area. In contrast, the mean annual maximum temperature (Tmax) for the state is anticipated to see an increase ranging from 0.5–1.25°C, with more significant changes expected in minimum temperatures, aligning with historical trends in India.

The rise in minimum temperature has multifaceted impacts, affecting not only plants and crops but also human comfort. This suggests that night-time temperatures will also experience an increase in the near future compared to the baseline period. Additionally, the analysis of climate simulations for the baseline (1970–2000) and near future (2021–50) indicates an uptick in summer monsoon (June–September) precipitation. The mean annual summer monsoon rainfall is projected to increase by 0–20 percent relative to baseline figures.

Further examination suggests that by the late 2030s and early 2040s, the state will witness a higher frequency of extreme wet days. This implies that, in the upcoming summer-monsoon seasons, there will be more intermittent breaks in precipitation. Furthermore, a heightened level of relative humidity is anticipated in the near future.

4. Punjab's Encounters with recent extreme weather events

Over the years, Punjab has faced diverse extreme weather events. Noteworthy incidents include substantial snowfall in Pathankot in January 2011, an exceptional 400 mm rainfall in Ludhiana within 24 hours, and a remarkably low temperature of -0.4°C in Bathinda, both occurring in August 2011. The year 2012 witnessed a prolonged cold wave compared to previous years, and Ludhiana experienced a rain-free June. In June-July 2012, Bathinda received more rainfall than Ludhiana. December 2019 marked Ludhiana's lowest monthly average maximum temperature in 22 years. During 2019, Ludhiana received 1156 mm of rainfall, slightly above the normal of 1150 mm, and recorded the lowest maximum temperature since 1970 during six days in late December (IIT, Mandi, 2020).

5. Findings and Conclusion

The foregoing discussion highlights the pronounced impact of increasing urbanisation on urban areas, causing a rise in urban temperatures that extends to the surrounding rural developments—an occurrence recognised as the UHI effect (Valsson & Bharat, 2009). This heightened temperature within urban settings subsequently affects the well-being of the residents. Presently, global attention to UHI studies is growing, with a focus on addressing this phenomenon. However, in India, UHI studies are in the early stages, predominantly concentrated on metropolitan cities and the Southern part of the country. This leaves a considerable research gap, especially for the northern states, including Punjab.

Punjab, ranking seventh among all Indian states in urbanisation, has experienced substantial growth over the last decade. India Meteorological Department data from May 11, 2019, revealed markedly above-normal maximum temperatures (5.1°C or more) across Punjab, Haryana, Chandigarh, Delhi, east Rajasthan, Madhya Pradesh and Vidarbha (Masson-Delmotte, et al, 2021). Despite this alarming situation, there remains an absence of quantitative UHI studies in Punjab. While a few research papers and climatologically data hint at the presence of a heat island effect in urban areas of Punjab, comprehensive studies are notably lacking. To address this gap and develop effective UHI mitigation techniques tailored to Punjab's specific context, urgent research efforts are needed. This underscores the imperative for urban planners and architects to take immediate and strategic measures to mitigate the impacts of climate change and the UHI effect in Punjab through thoughtful building design and urban planning initiative

In conclusion, this research underscores the urgent need for addressing the escalating UHI effect in Punjab's cities through strategic architectural interventions. With Punjab undergoing a transformative journey from an agricultural hub to a service-centric economy marked by rapid urbanisation, the impacts on climate have become evident, especially the often-overlooked consequences of UHI effects. The study emphasises the critical role of effective communication of scientific knowledge to urban planners, architects, engineers, and governmental agencies.

Punjab, being the seventh most urbanised state in India, faces significant challenges due to unplanned urban expansion and the conversion of green spaces into impermeable surfaces. Despite alarming climatic situations, the absence of quantitative UHI studies in Punjab is a notable research gap. This research urges immediate and strategic measures by urban planners and architects to mitigate climate change impacts and the UHI effect. It highlights the need for tailored tools and guidelines, emphasising the role of city morphology, surface treatment, and urbanisation on microclimates. By unveiling architectural imperatives, the research contributes to sustainable urban development, ensuring more manageable, livable, and comfortable urban environments at the micro level.

References

- Basawaraja, R.; Chari, K.B.; Mise, S.R.; Chetti, S.B. (2011). Analysis of the impact of urban sprawl in altering the land-use, land-cover pattern of Raichur City, India, using geospatial technologies. *Journal of Geography and Regional Planning,* 4(8), 455-462.
- Chandler, T. J. (1965). *The Climate of London*. Hutchinson, Urbana-Champaign.
- Chow, D.B.; Winston, A.J.B.; T.L. (2012). Urban Heat Island Research in Phoenix, Arizona: Theoretical Contributions and Policy Applications. *Bulletin of the American Meteorological Society*, 93(4), 517–530. https://ink.library.smu.edu.sg/soss_research/3069
- Census of India. (2011). *General Population Tables, Punjab. Series-4*, Directorate of Census Operation, Punjab. Provisional Population Tables, Punjab. Directorate of Census Operation, Punjab
- CRGGS (2015). *Climate Resilient Green Growth Strategies for Punjab (Summary for Policymakers*). Implemented by the Energy and Resources Institute (TERI) in Collaboration with Global Green Growth Institute (GGGI) and nodal support from the Department of Science, Technology & Environment, Government of Punjab and Punjab State Council for Science and Technology. Published by Teri Press.
- Helbling, M.; Meierrieks, D. (2022). Global Warming and urbanisation. *Journal of Population Economics.*36, 1187–1223. https://doi.org/10.1007/s00148-022-00924-y
- Indian Institute of Technology (IIT) Mandi. (2020).*Climate Vulnerability Assessment for Adaptation Planning in India Using a Common Framework Report 2019-2020*. Retrieved from https://dst.gov.in/sites/default/files/Full%20Report%20%281%29.pdf
- Howard, L. (1818). *The Climate of London, Deduced from Meteorological Observations made at Different Places in the Neighborhood of the Metropolis* (Vol. II). London: W. Philips, George Yard, Lombard Street. Sold also by J. and A. Arch, Cornhill; Baldwin, Cradock and Joy, and W. Bent, Paternoster Row; J. Hatchard, Piccadilly.
- Jerath, N.; Ladhar, S.S.; Kaur, S., et al. (2014). *Punjab State Action Plan on Climate Change*. Punjab State Council for Science and Technology [PSCST] and German International Cooperation [GIZ], India. Pp 329.
- Masson-Delmotte; V. Zhai; P.; Pirani, A. (2021) Intergovernmental Panel on Climate Change [IPCC], *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press. doi: 10.1017/9781009157896*
- Oke, T.R. (1995). The Heat Island of the Urban Boundary Layer: Characteristics, Causes and Effects. In J. E. Cermak et al. (Eds.), *Wind Climate in Cities* (pp. 81-107). Dordrecht, the Netherlands: Kluwer Academic Publishers
- Punjab State Council for Science and Technology [PSCST] and German International Cooperation [GIZ]. (2015). *Punjab State Action Plan on Climate Change* (pp. 329). Retrieved from https://www.teriin.org/projects/green/pdf/Punjab-Adaptation.pdf.
- Rashid, N.; Alam, J.A.M.M.; Chowdhury, M.A.; Islam, S.L.U. (Aug. 2022). Impact of Land Use Change and urbanisation on the Urban Heat Island Effect in Narayanganj City, Bangladesh: A Remote Sensing-Based Estimation. Environmental Challenges, 8, Article 100571.
- Sadhashivam, T. & Shahla, T (2016): TRENDS OF urbanisation IN INDIA: ISSUES AND CHALLENGES IN THE 21ST CENTURY, *International Journal of Information Research and Review* Vol. 03, Issue, 05, pp. 2375-2384
- The Energy and Resources Institute (TERI). (2017). Final Report on Urban Planning Characteristics to Mitigate Climate Change in the Context of Urban Heat Island Effect. Project Report No. 2016BG03. Bangalore. Pp.82.
- Valsson, S.; Bharat, A. (2009, April). Urban heat island: cause for micro climate variations. *Architecture-Time, Space and People*, 21–25.
- Voogt, J.A.; Oke, T.R. (2003). Thermal Remote Sensing of Urban Climates. *Remote Sensing of Environment*, 86(3), 370–384. doi: 10.1016/S0034-4257(03)00079-8.

Prof. Akanksha Sharma (A13368) is a head at the GNDEC School of Architecture, and a practicing professional. She combines over two decades of teaching with practical experience. Her research focuses on pioneering solutions to mitigate the urban heat island effect, contributing significantly to sustainable urban development, particularly in the region of Punjab and beyond.
Email:arakankshasharma1@gmail.com

Dr. Karamjit Singh Chahal (F17782) is a Professor in the Department of Architecture at Guru Nanak Dev University, Amritsar. With a rich experience spanning over 27 years, he has demonstrated exceptional proficiency as both an esteemed academician and a seasoned professional, particularly focusing on Sikh Architecture. Dr. Chahal has made substantial contributions to the realms of academia and professional practice, showcasing his commitment and expertise in the field.
Email: karamjit.arch@gndu.ac.in

RESEARCH PAPER

Understanding the Rich Traditional Craftsmanship of Punjab

Through the Architectural Works of Bhai Ram Singh

By **Ripu Daman Singh, Nisar Khan and Hina Zia**

Abstract

Bhai Ram Singh was one of the foremost native architects and designers of Punjab, who had humble beginnings as a traditional wood craftsman. He was a true representative of traditional Punjab craftsmanship and architecture in the late 19th and early 20th century British rule in India. This paper presents a study of the works of Bhai Ram Singh, who employed his traditional knowledge of craftsmanship to design a broad spectrum of furniture, interiors and buildings. This paper argues that the reflection of craftsmanship in design is evident in the architectural works of Bhai Ram Singh. The rich legacy and diverse spectrum of Bhai Ram Singh's works has not been documented till date but is worthy of preservation for posterity. The examples presented in this paper display the immense creativity of Bhai Ram Singh in the extremely diverse nature of works. The material presented in this paper is sourced through various literary sources and primary data collected from visits to the works of Bhai Ram Singh. The study is a tribute to the son of the soil whose works deserve to be studied and documented to bring forth the contributions of Bhai Ram Singh towards the rich architectural heritage of Punjab.

Key Words: *Bhai Ram Singh, craftsmanship, traditional, architecture, Punjab, heritage*

1. Introduction

Traditional craftsmanship is developed through knowledge and skill being passed from one generation to the other in a guild system over hundreds of years. The traditional craftsmanship can be embedded in building design through symbolism related to natural forms, motifs, geometry, and materials (Hamouie, 2021). The presence of craft detailing on natural materials using native techniques accentuates the traditional character of the building design and contributes to the heritage value (Nelson, 1988). The traditional craftsmanship in India throughout history has been symbolic of native arts and crafts that were expressed through the symbolism of religion, culture, natural forms, and geometrical motifs. The native craftsmen transferred the skill and knowledge resources over generations orally and through codified training. Carpenters, also called *sutradhars*[1] in ancient society were highly respected as their handicraft skills were aligned with religious purity as seen in the wood carvings in temple doors, brackets and ceilings (Aamir, 2018). One such gifted traditional Punjabi carpenter was Bhai Ram Singh (1858-1916), who belonged to the traditional carpenter guild

1. Literal meaning is "someone who holds the thread of the story" which translates to being extremely relevant in society

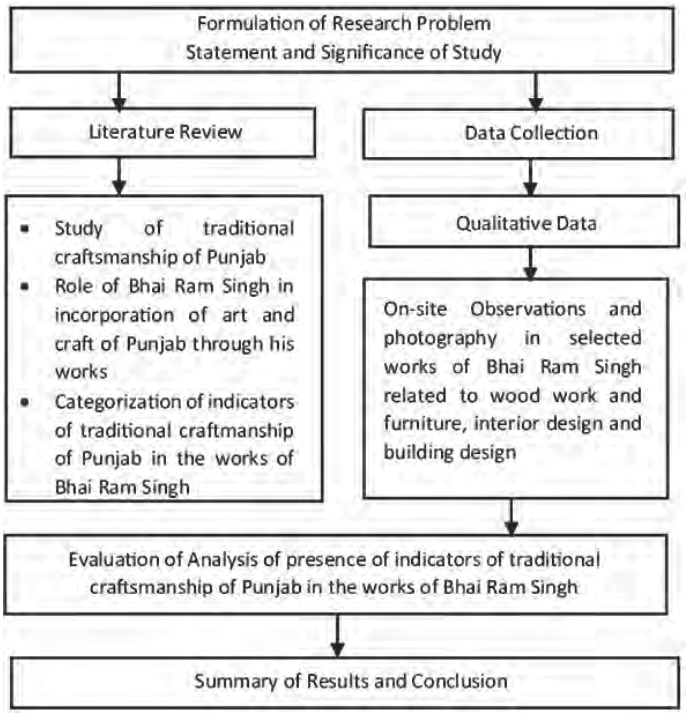


Fig. 1 : Methodology of current research
Source: Authors

from *Ramgarhia* caste (Tarar, 2018; Vandal and Vandal, 2006) that displayed the rich craftsmanship of Punjab in their designs of wood carved furniture, interior panels, exhibits and pavilions (Khan, 2017). During the British rule, the architects and engineers of European origin followed the *Jeypore portfolio of architectural details*[2] for creating Indianized facades in the hybridized *Indo-Saracenic style*[3] in the late 19th century, while Bhai Ram Singh used his traditional understanding of native Punjabi craftsmanship and architecture to design majestic buildings and interiors (Bhatti, 2020; Goswamy, 2012). There were many Indian artists and craftsmen who worked in the colonial period but Bhai Ram Singh was arguably the most talented and creative of them (Ashraf, 2021; NCA, 2003). Though he was an extremely prominent architect till the early 20th century, he was largely forgotten after his death in 1916 (Sharma, 2016). Most of his works have so far remained unrecognised, other than the Khalsa College of Amritsar for which he is recognised as the architect (Bance Peter, 2012; Sahni, 1994). After his death in 1916, Bhai Ram Singh's architectural legacy was not documented, thus depriving the art and architectural fraternity of

2 A collection of architectural details from historical buildings of India, prepared in 6 volumes by Col. Swinton Jacob, a British Engineer in late 19th century

3 A hybrid style comprising Indian facades, elements, features and western planning propagated as official style for public buildings by the British in the mid-19th century

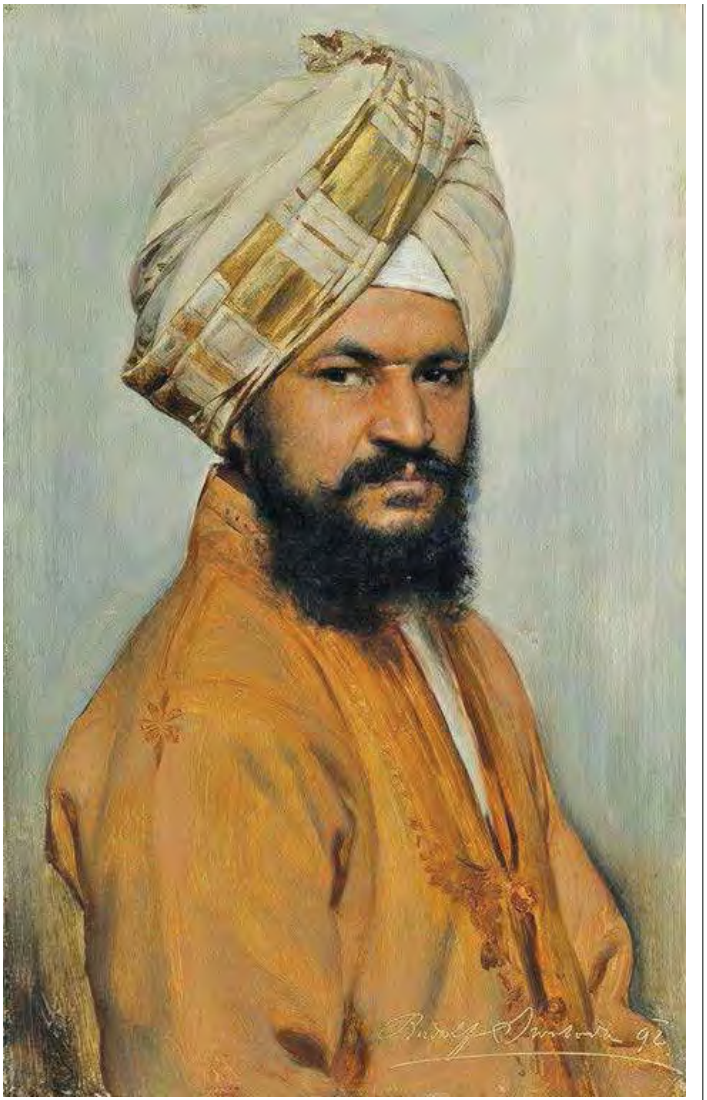


Fig. 2 : Portrait of Bhai Ram Singh
Source: English Heritage, UK

the passion for craftsmanship displayed in his work. His work is a testimony to the built heritage of Punjab and requires to be conserved for permanence and posterity. The intent of the study is to find out how the traditional craftsmanship of Punjab has been manifested in the design and architectural works of Bhai Ram Singh. The objective of this work is to present the architectural works of Bhai Ram Singh through the lens of the various facets of traditional craftsmanship of Punjab.

2. Methodology

The present study was conducted at first through a study of existing literature to understand the close association between craft and design in the early works of Bhai Ram Singh, and later through qualitative case studies to understand the reflection of craftsmanship in his works. The graphical description of methodology is shown in figure 1. Though it is not possible to present the entire

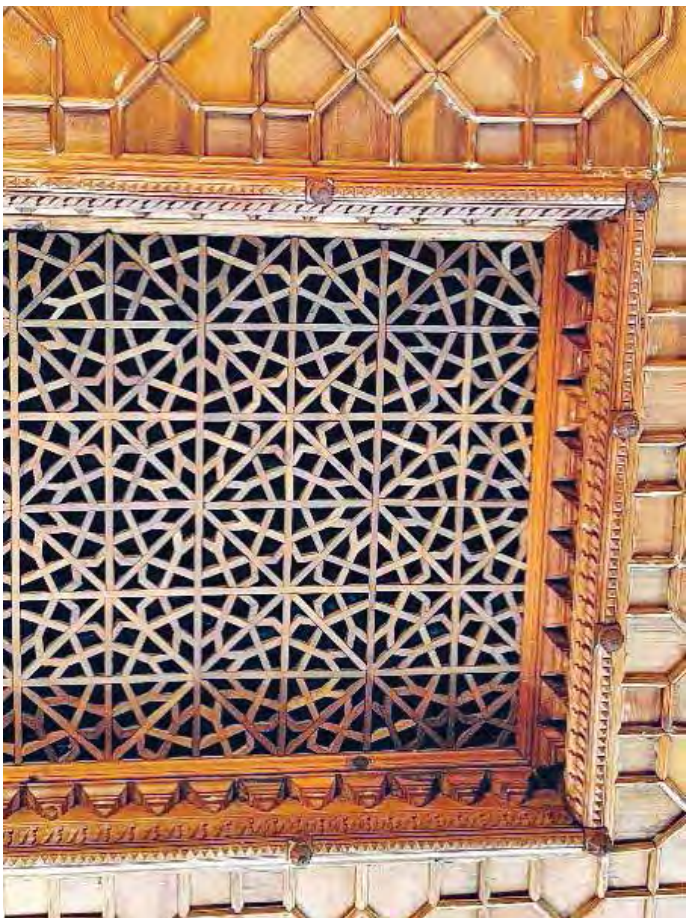


Fig. 3 : Pinjra work carving in Bagshot Park, UK
Source: Corresponding Author

spectrum of diverse and distinctive works of Bhai Ram Singh in one paper, an attempt has been made to cite a few representative works that reflect his craftsmanship.

3. Literature Review

The literature review has been divided into three sections relating to the emergence of new vocabulary of architectural style in the British colonial period, the establishment of art and craft schools in mid-19th century, and a study of characteristics of traditional craftsmanship of Punjab as witnessed in the diverse works of Bhai Ram Singh.

3.1 Emergence of new architectural vocabulary in British colonial rule

The art and architecture during the early British colonial rule displayed a mix of styles ranging from neo-classical, neo-Gothic and Palladian as prevalent in Britian (Metcalf, 1989; Scriver & Prakash, 2007) while the mid-19th century witnessed a new "Indo-Saracenic" style (Grover, 2014; Sinha, 2014). In the same period, new art and craft schools in India were set up as the British required native-trained manpower to execute the public works projects (Fujita, 2017; Stamp, 1981; Tillotson, 1989). Focus

Fig. 4 : Traditional geometrical lattice work in the railing design in Khalsa College, Amritsar, Punjab
Source: Corresponding Author

of art schools was more on accuracy and precision of drawing to produce industrial products on a large scale and to train Indians for producing art work and craft products as per European flavour (Kantawala, 2012; Parker, 1987).

3.2 Mayo School of Arts and Bhai Ram Singh

The establishment of School of Carpentry and School of Arts, Lahore (a part of undivided Punjab) in 1875 later renamed as Mayo School of Arts was also intended to impart skill in technical drawing but the principalship of John Lockwood Kipling brought the traditional craftsmen to the forefront (Vandal and Vandal, 2006). Sons of Punjab craftsmen were enrolled to the newly set up school so that they could bring forth the traditional knowledge of Punjab art, craftsmanship with them (Bryant, 2020; N. S. Khan, 2017). Kipling taught principles of European art to his students but promoted them to practice their traditional style of carvings (Aamir, 2018). The craftsmanship skill and hereditary knowledge of students of Mayo School of Arts was preferred over the theoretical understanding of geometry and art, thus leading to recognition of traditional Indian craftsmanship. Bhai Ram Singh (fig. 2) enrolled as a student in the first batch in 1875, won numerous accolades and honours for the Mayo School during the industrial exhibitions all over the country as well as abroad and was highly appreciated and promoted by Kipling (Tarar, 2018; Vandal and Vandal, 2006). Bhai Ram Singh proved himself as a creative designer who designed his buildings using his traditional craft expertise in woodwork (Ata-Ullah, 1998; Bilgrami, 2020). The designs done by Bhai Ram Singh can be divided into three major categories, namely wood

work and furniture, interiors and building design. These three categories will be explored in the present study.

3.3 Characteristics of craftsmanship in the works of Bhai Ram Singh

Bhai Ram Singh, graduated to design interiors and buildings, initially under mentorship of Kipling but largely independently after 1891 (Carrington, 1970; Din, 2018; Kamran, 2016; Shuja & Junejo, 2020; Vandal and Vandal, 2006). The traditional knowledge of wood craft can be seen in his works of craft, design, and architecture (Khan, 2021; Rehman & Arshad, 2012). Being a craftsman, Bhai Ram Singh incorporated traditional craft into buildings design as he was proficient in Punjabi wood carving techniques, especially *pinjra* work, a traditional form of lattice perforated wooden carved screen (Ata-Ullah, 1998) in which wooden pieces are held together with dowels (Khan, 2021). In 1883, he was appointed as a "master" and started being called "*Bhai*" Ram Singh with the term *Bhai* signifying an elder brother (Carrington, 1970; Shuja & Junejo, 2020). Bhai Ram Singh served the Mayo School of Arts, Lahore (a part of undivided Punjab, India) for a major part of his life, about 39 years, initially as a student and later as a master, Vice -Principal and eventually as the Principal, a first for an Indian (Singh & Tatla, 2006; Vandal and Vandal, 2006). His creative genius is evident in his works executed in numerous Indian states, parts of present-day Pakistan and the United Kingdom. He won many accolades including four significant titles out of which the most prominent one was MVO, Member of Victorian Order (Tuli, 2017).

Fig. 5 : Geometry and nature in carving seen in a chair at the Indian room in Osborne House, Isle of Wight, UK
Source: Corresponding Author

Fig. 6 : Religious symbolism in carving at the Indian room in Osborne House, Isle of Wight, UK
Source: Corresponding Author

Table 1: Categorisation of indicators of craftsmanship from literature
Source: Authors

Description of craftsmanship outlined by various authors	Categorization of indicators for present research
Trained by highly skilful craftsmen over generations who belong to an artisan clan/ caste (Aamir, 2018; Ata-Ullah, 1998; Hamouie, 2021; Khan, 2015; Khan, 2021; Tarar, 2018; Vandal and Vandal, 2006)	Perfection in detailing
Use of natural elements, motifs, sacred signs (Aamir, 2018; Hamouie, 2021; H. A. Khan, 2015; N. S. Khan, 2021b; Tarar, 2018)	Symbolism
Presence of identifying elements, features, patterns, representative of a region/ community (Aamir, 2018; Khan, 2015; Rehman & Arshad, 2012; Vandal and Vandal, 2006)	Distinct character/ identity
Use of geometrical patterns to create designs (Aamir, 2018; Khan, 2015; Khan, 2021)	Geometry
Use of natural materials like wood, brick etc. (Hamouie, 2021; Khan, 2017)	Materials
Use of traditional techniques and styles (Bilgrami, 2020; Khan, 2021; Nelson, 1988; Rehman & Arshad, 2012)	Techniques

Fig. 7 : Islamic iconography in the interior of Indian room at Osborne House, Isle of Wight, UK
Source: Corresponding Author

The description of craftsmanship outlined by various authors in the literature study has been summarised and further categorised as indicators of craftsmanship in the present research, as seen in Table 1. The presence of the indicators (perfection in detailing, symbolism, distinct character/identity, geometry, materials and techniques) is traced in the works of Bhai Ram Singh under the broad categories of wood work and furniture, interior design, and building design.

4. Discussion and Results

4.1 Wood work and Furniture

Bhai Ram Singh's initial projects in the early 1880s were related to wood-work expressed through the design of furniture, exhibition panels, partitions, carved wood display panels etc. The mastery with which Bhai Ram Singh dealt with timber craftsmanship, combined with traditional geometry places him amongst the most extraordinary designers. His early learnings traditional Indian craft combined with geometry learnt in Mayo School of Arts was published in the Journal of Indian Art. *Pinjra work* became one of the major attributes of Bhai Ram Singh's work, which he refined and used in various ways - in furniture, wall panelling, partitions as well as ceiling design. Some of these are seen in the design of Indian rooms at Bagshot Park (fig. 3) and Osborne House in UK. The distinct traditional geometrical patterns derived from Islamic and Mughal art were used in the railing design in Khalsa College, Amritsar (fig. 4). The symbolism was representative of the region's culture and heritage, motifs of natural themes, iconography and religious symbols as is evident in the wood-carved chair design

Fig. 8 : Geometrical pattern in the interior of Darbar Hall in Kapurthala
Source: Corresponding Author

(fig. 5) and the carved *Ganesha*[4] *over the main door* (Fig. 6) in Queen Victoria's Osborne House, UK. The traditional materials and techniques of the corner panel in the Bagshot Park in UK and the immaculate detailing in the Darbar Halls for princely states of Punjab displayed the distinctiveness of wood carving tradition of Punjab.

4.2 Interiors

Bhai Ram Singh designed numerous interiors throughout the geographical extent that he worked in for over more than 4 decades. Though he worked in the colonial regime, he rejected the classical art and craft idiom and used his own hereditary training and understanding of Indian art and craft to create diverse interiors of *darbar* halls, senate halls and multi-purpose halls in religious and institutional buildings. The inspiration from traditional perforated wood-carved *Pinjra* work, the presence of the Islamic arch and the perfection in carved detailing in the design of *jharokha*[5] can be seen in the Indian room in Osborne House. The symbolism in the form of peacock as a focal element and presence of Islamic iconography (fig. 7) has been used in the Osborne house as well. The use of repetition and rhythm can be seen in the multi-foliated brick arches of the corridors of Khalsa College in Amritsar. The use of natural materials like wood and brick adds traditional flavour to the interiors, as seen in Khalsa

4 Ganesha (also called Ganapati) is one of the most important deities in Hinduism

5 A projected balcony with decorative/ carved details used in Indian historical/ traditional building interiors as well as exteriors

Fig. 9 : Façade adorned with elements and features of traditional architecture of Punjab in Khalsa College, Amritsar
Source: Corresponding Author

College as well as the interiors of Indian room in the UK. The traditional techniques of constructing the dome over an octagonal base using Islamic squinch has been employed in the dome of Art and Craft Institute, Amritsar. Bhai Ram Singh's distinctive style of dealing with large interior spaces (fig. 8) made his work clearly identifiable from the European designers, who used the classical idiom in their work.

4.3 Building Design

Bhai Ram Singh preferred to use the traditional styles of art and architecture while using local materials and techniques of construction instead of following the European architects and engineers who were trained to employ classical styles in their buildings.

The harmonious and geometrical articulation of facades was inspired from Indian styles, such as domes, turrets, *chhatris*, and multi-foliated arches which were inspired from Sikh *gurdwaras*. This is specially seen in the design of Khalsa College, Amritsar (fig. 9) which was envisaged to be a strong symbol of Punjabi culture and Sikh religion. The use of red clay bricks, especially for immaculate detailing and textural quality of facades, along with the use of traditional techniques of construction can also be seen in Khalsa College.

In the design of DAV College (now Islamia College), Lahore, the symbolism was reflected using elements of Hindu architecture like *shikharas*, brackets, decorative motifs etc. *Pinjra* work, in which Singh was an expert, was transformed into perforated terracotta screens, called *jaalis* in buildings, as in the Arts and Craft institute, Amritsar (fig. 10).

The buildings designed by Bhai Ram Singh display a harmonious look and the skilful perfection in details of decorative brickwork. Bhai Ram Singh is credited with the design of carved wooden furniture, interiors of *darbar* halls as well as many iconic buildings that bear testimony of his unique signature style in architecture inspired from traditional art and architecture of Punjab.

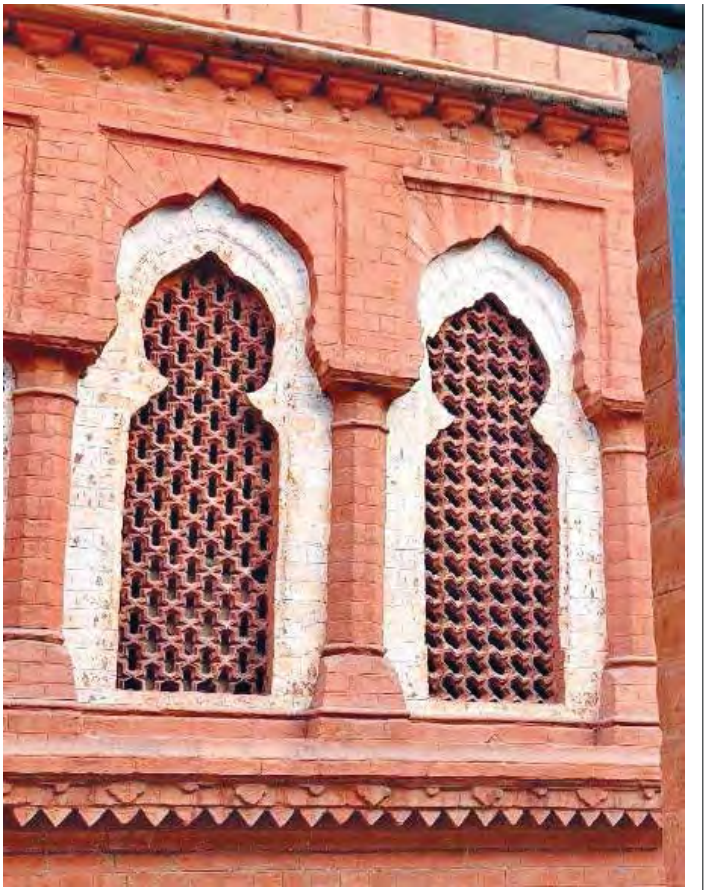


Fig. 10 : Terracotta *jaali* in the Arts and Crafts Institute in Amritsar
Source: Corresponding Author

5. Conclusion

As per Pandya (2011), one must reflect to the past to search for traditional and cultural ethos for artistic continuity in craftsmanship. Bhai Ram Singh's excellence in wood carving gave an impetus to traditional craftsmanship in the region and led to the rise and upliftment of craftsmen, who had seen a sharp decline in patronage and demand with the arrival of the British in India. This background of hereditary crafts knowledge and his extraordinary skill in design led to the creation of many masterpieces of wood carving, interiors and buildings. Bhai Ram Singh used his deep understanding of traditional knowledge (being a part of the carpenter clan) to grow out of the prevalent colonial inspired Indo-Saracenic style and the *Jeypore* portfolio, while working for the British, thus contributing immensely towards the preservation of traditional arts and crafts of Punjab through architecture. Owing to his native and modest background, Bhai Ram Singh has rarely been credited for his contributions towards the conservation of traditional art and architecture of the region. It is important to understand his role in the reflection of craftsmanship through his works. The examples of craftwork, interiors and building designs presented in this paper are characteristic works of Bhai Ram

Singh, who possessed immense artistic ability and creative potential, while being connected strongly with his roots. The works of Bhai Ram Singh have left us a traditional legacy of Punjabi craftsmanship which must be preserved and celebrated.

References

- Aamir, N. (2018). The Rise and Fall of the Tradition of Woodcarving in the Subcontinent. *Journal of the Punjab University Historical Society*, *3 I*(I), 161–171. http://pu.edu.pk/images/journal/HistoryPStudies/PDF_Files/16_V-31-No1-Jan18.pdf
- Ashraf, M. Z. (2021). Identity Becomes Pride if Routed Through History. *Journal of the Punjab University Historical Society*, *34*(01), 147–157.
- Ata-Ullah, N. (1998). Stylistic hybridity and colonial art and design education: a wooden carved screen by Ram Singh. In T. Barringer & T. Flynn (Eds.), *Colonialism and the object : empire, material culture, and the museum* (pp. 68–81). Routledge.
- Bance Peter. (2012). The Sikhs in Britain (150 Years of Photographs). In *Coronet House Publishing Ltd.* Coronet House Publishing Ltd.
- Bhatti, S. (2020). *Bhai Ram Singh: Inventor And Master Of Sikh Architecture*. Https://Worldarchitecture.Org/. https://worldarchitecture.org/article-links/eencz/bhai-ram-singh-inventor-and-master-of-sikh-architecture--a-tribute-by-dr-ss-bhatti.html
- Bilgrami, S. A. (2020). Rethinking Architectural Education in South Asia. In Shaban Khadija Jamal (Ed.), *Rethinking Architectural Education in South Asia* (pp. 40–51). Institute of Architects Pakistan. https://iap.com.pk/wp-content/uploads/2020/11/Rethinking-Architectural-Education-in-South-Asia_compressed.pdf
- Bryant, J. (2020). Colonial Architecture in Lahore: J. L. Kipling and the 'Indo-saracenic' Styles. *South Asian Studies*, *36*(1), 61–71. https://doi.org/10.1080/02666030.2020.1721111
- Carrington, C. (1970). Rudyard Kipling: His life and work. *Pelican Biographies*, *biography,* 634.
- Din, N. U. (2018). *Shadows of Empire : The Mughal and British Colonial Heritage of Lahore*. City University of New York.
- Fujita, H. (2017). Art and Design Education in Nineteenth Century India: British Background and Development in South Asia. *The Journal of the Asian Conference of Design History and Theory*, *2*, 109–120.
- Goswamy B.N. (2012, November 18). Man of many parts. *The Sunday Tribune - Spectrum*. http://www.tribuneindia.com/2006/20060716/spectrum/main1.htm
- Grover, A. R. (2014). Indo-Saracenic Architecture : Indigenous Ingredients For Imperial Intent. *Humanities and Social Sciences Review*, *03*(05), 305–326. UniversityPublications.net
- Hamouie, M. (2021). The Architect-Craftsperson. *Journal of Traditional Building, Architecture and Urbanism*, *2*, 195–204.
- Kamran, T. (2016). Lockwood Kipling's role and the establishment of the Mayo School of Art (1875-1898). *Journal of the Royal Asiatic Society*, *26*(3), 443–461. https://doi.org/10.1017/S1356186315000516
- Kantawala, A. (2012). Art Education in Colonial India : Implementation and Imposition. *Studies in Art Education*, *53*(3), 208–222.
- Khan, H. A. (2015). *Artisans, Sufis, and Colonial Art Institutions in Nineteenth century Punjab* [National Univeristy of Singapore]. https://core.ac.uk/reader/48656990
- Khan, N. S. (2017). Industrial Art Education in Colonial Punjab: Kipling's Pedagogy and Hereditary Craftsmen. *John Lockwood Kipling : Arts & Crafts in the Punjab and Londonrts & Crafts in the Punjab and London*, 468–487.
- Khan, N. S. (2021a). Persian-Punjabi_Urdu Identities of Traditional Geometrical Patterns Lost During the Colonial Rule of the Punjab (1849–1947). *Manazir Journal*, *3*, 45–63.
- Khan, N. S. (2021b). Persian-Punjabi/Urdu Identities of Traditional Geometrical Patterns Lost During the Colonial Rule of the Punjab (1849–1947). *Manazir Journal*, *3*, 45–63.
- Metcalf, T. R. (1989). *An Imperial Vision*. University of California Press. http://www.mcah.columbia.edu/courses/indianart/pdf/new_delhi_metcalf.pdf
- NCA. (2003). *Official Chronicle of Mayo School of Art - Formative years under J.L.Kipling (1874-1894)* (N. O. Tarar (Ed.); I). National College of Architecture.
- Nelson, L. H. (1988). Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character. *Preservation Brief 17: Architectural Character Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character*, 1–17. http://www.nps.gov/hps/tps/briefs/brief17.htm
- Parker, S. K. (1987). Artistic Practice and Education in India: A Historical Overview. *Journal of Aesthetic Education*, *21*(4), 123. https://doi.org/10.2307/3332836
- Rehman, A., & Arshad, M. (2012). The British Vision of Lahore: an Examination of Concepts of Architecture and Urban Design Through Literary Sources. *Journal of Research in Architecture and Planning*, *13Rehman,*(2), 8–17. https://doi.org/10.53700/jrap1322012_2
- Sahni, R. R. (1994). *Memoirs of Ruchi Ram Sahni* (Narender K. Sehgal & S. Mahanti (Eds.)). Vigyan Prasar, India. https://www.arvindguptatoys.com/arvindgupta/ruchiram.pdf
- Scriver, P., & Prakash, V. (Eds.). (2007). *Colonial Modernities Building, dwelling and architecture in British India and Ceylon*. Routledge.
- Sharma Sarika. (2016, December 18). Queen's Indian architect. *The Tribune*. https://www.tribuneindia.com/news/archive/features/queen-s-indian-architect-338125

- Shuja, S., & Junejo, R. (2020). Appropriating Indo-Saracenic style: Bhai Ram Singh's contributions to the architectural identity of 19th century Lahore. *Journal of Traditional Building, Architecture and Urbanism*, *1*, 357–368.
- Singh, G., & Tatla, D. S. (2006). *Sikhs in Britain: The making of a Community* (First, Issue January). Zed Books.
- Sinha, A. (2014). Architectural history in India: a postcolonial perspective. *Tekton: A Journal of Architecture, Urban Design and Planning*, *1*(1), 32–47.
- Stamp, G. (1981). Britsh Architecture in India 1857-1947. *Journal of the Royal Society of Arts*, *129*(5298), 357–379. https://www.jstor.org/stable/41373304
- Tarar, N. O. (2018). John Lockwood Kipling, Ram Singh and the Mayo School of Arts, Lahore. *Kipling Journal: John Lockwood Kipling Special Issue*, *373*(Special Issue), 1–21.
- Tillotson, G. (1989). *Tradition of Indian Architecture – Continuity Controversy & Change* (1st ed.). Yale Uniersity Press.
- Tuli, P. S. (2017). *The Mighty Sikhs* (S. S. Narula (Ed.); Second). Dr. S.S.Gill Amritsar.
- Vandal, Pervaiz and Vandal, S. (2006). *The Raj, Lahore and Bhai Ram Singh* (1st ed.). NCA, Lahore.
- Basawaraja, R.; Chari, K.B.; Mise, S.R.; Chetti, S.B. (2011). Analysis of the impact of urban sprawl in altering the land-use, land-cover pattern of Raichur City, India, using geospatial technologies. *Journal of Geography and Regional Planning,* 4(8), 455-462.

Ripu Daman Singh (A16592, corresponding author) is a doctoral research scholar in the Faculty of Architecture and Ekistics, Jamia Millia Islamia, New Delhi. His research is focused on the architectural works of Bhai Ram Singh. He is working as an Associate Professor at the GZS School of Architecture and Planning, MRSPTU, Bathinda, Punjab.
Email: ripu.jatinder@gmail.com

Dr. Nisar Khan is a Professor at the Faculty of Architecture and Ekistics, Jamia Millia Islamia, New Delhi where he is the coordinator of M.Arch. in Urban Regeneration. He researches urban informality and transformation.
Email: nkhan2@jmi.ac.in

Dr. Hina Zia is a Professor and Dean at the Faculty of Architecture and Ekistics and also the Head of the Department of Planning at the Department of Design and Innovation, Jamia Millia Islamia, New Delhi.
Email: hzia@jmi.ac.in

ARTICLE

A Tribute to Madhav Achwal: An Architect, Academician and Marathi Author

By Sarbjit Singh Bahga

Madhav Achwal (03.11.1925–21.01.1980) was an eminent architect, educationist, critic, renowned litterateur, and Marathi author. His name has been immortalised by the Indian Institute of Architects (IIA) by instituting the 'Madhav Achwal Gold Medal' for a lifetime contribution to architectural education. Constituted in 1988, the "Madhav Achwal Gold Medal" is perhaps the highest honour bestowed on outstanding architectural educationists in India.

Despite the efforts made by the IIA, most Indian architects are still unaware of who Madhav Achwal was. It is quite amusing that even many of the recipients of the 'Madhav Achwal Gold Medal' are unfamiliar with this legendary figure. This unfortunate situation arises from the lack of any written documentation about Madhav Achwal. Not only does the IIA lack any write-up or photograph of Madhav Achwal published in its journal JIIA or on its website, but others are also unable to provide any information about him.

The readers may ask, what prompted a Punjabi Jatt Sikh to write about a Marathi *Saahityakaar* and *Vaastukaar,* Madhav Achwal? I am indebted to Shri Madhav Achwal Ji for sparing one hour (out of his short lifespan of 55 years) for a one-to-one meeting with me on June 18, 1979. The occasion was a viva voce for my final year's thesis examination at the

Madhav Achwal (03.11.1925 - 21.01.1980)
Source: Shilpkar Charitrakosh

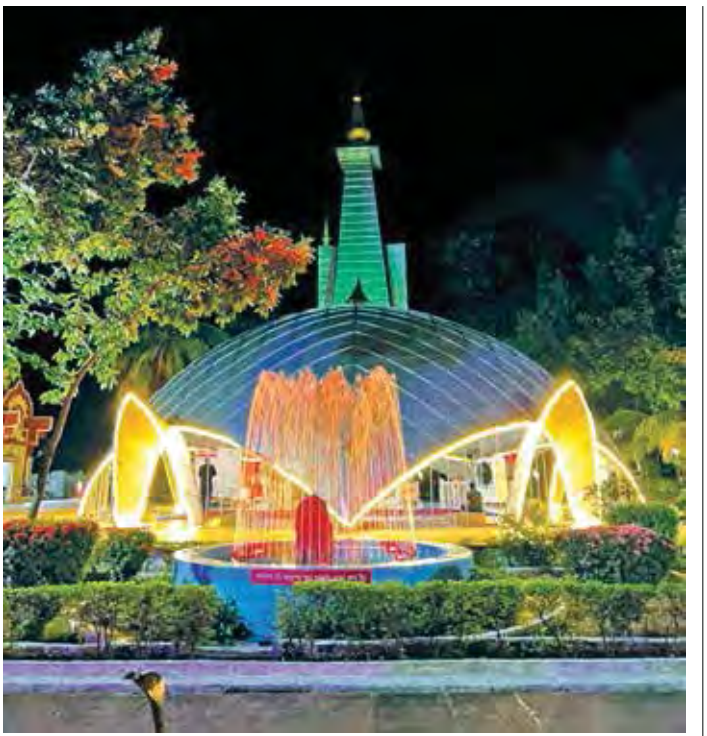
Chandigarh College of Architecture. Madhav Achwal was my external examiner, and Professor VP Anil was my thesis guide. During that one hour, I was on the receiving end and too young to analyse the professional stature of Madhav Achwal. But I still remember the aura around him and his practical approach to judging my thesis on 'KL Saigal Memorial at Jalandhar'.

During that period, our thesis reports were submitted a month in advance and sent to the external examiners for prior scrutiny. As my viva voce began, I noticed that my report had pencil underlining on almost every page. It appeared that Madhav Achwal had thoroughly studied it, like a great teacher and critic. At the beginning of my verbal examination, I attempted to explain the contents of my thesis report. Madhav Achwal calmly responded, "It is all right," and swiftly turned to about two-thirds of the pages. Then, he immediately opened the 'Architect's Brief', which primarily explained the inferences drawn and the proposed design concept.

My concept was based on three vital aspects of the legendary singer KL Saigal's life, namely humbleness, simplicity, and purity. Madhav Achwal seemed to have admired my inferences and concepts, and thus, he discussed all these points thoroughly, professionally, and amicably—in sync with his personality. By this time, Madhav Achwal had made me comfortable by pulling me out of the examinophobia. After our discussion on the design concept, he took me straight to the 3-D model of the memorial, skipping all the drawings. He asked me to explain how I had translated the three vital aspects (humbleness, simplicity, and purity) into the design.

In my proposal, the design of the memorial was like a sunken garden, in keeping with the site's topography. The building blocks were kept at a low height to convey humbleness, and they had simple square shapes to represent simplicity and purity. All the components

Agriculture College of Anand—a view from the inner courtyard.
Source: B.A. College of Agriculture



EME Temple at Vadodara—an evening view.
Source: Himanshu Patel

were arranged in a way that embraced the concept of "building in the garden." The landscape followed the Mughal Garden style, with a gridiron pattern of paths, water bodies, and grassy lawns. To bring the entire built environment to life, KL Saigal's music was proposed to be played on the entire campus. Although my design was not as extravagant or eye-catching as those of my classmates, to my surprise, Madhav Achwal appreciated the design approach. He judged my thesis to be one of the top three in the class. It was almost like receiving a "Madhav Achwal Gold Medal" personally from Shri Madhav Achwal himself.

Madhav Achwal was born on November 3, 1925, in Kalyan, in the Thane District of Maharashtra. He spent his childhood and received his school education there in Kalyan. After completing his matriculation, Madhav Achwal went to Bombay (now Mumbai) to study architecture at the Sir J.J. College of Architecture. He pursued a four-year architecture course and obtained his G.D. Arch degree. Throughout his college days, he demonstrated exceptional academic performance and excelled in the field of 'building construction." As a result, he was awarded the Mayo Gold Medal in the final year of his G.D. Arch. programme.

Later, when he was to appear for the ARIBA (Associate of Royal Institute of British Architects) examination, he was exempted from Part I and Part II of the course. This exemption was granted due to his exceptional track record at the Sir J.J. College of Architecture.

EME Temple at Vadodara—an interior view.
Source: Jayakarthi Ram

EME Temple is an outstanding modern structure, with a geodesic dome clad in aluminium sheets.
Source: Karan Sadhu

As a result, he only had to clear one examination in professional practice. He performed exceptionally well in this examination, and the Royal Institute of British Architects recognised his answer sheet as a 'model' for future students to draw inspiration from.

After becoming an Associate Member of RIBA, Madhav Achwal established his architectural practice in Mumbai. During the initial years of his practice, he undertook significant work in the states of Maharashtra and Gujarat. These projects included small-scale buildings in and around Mumbai, as well as some buildings in Vallabh Vidyanagar, Anand. Notably, he also designed the Prabhakar Oak Clock Tower in Kalyan, his birthplace, which was completed in 1954. Situated at the bustling Shivaji Chowk in Kalyan, this clock tower stands out for its innovative and timeless design. It is named after Prabhakar Oak, a freedom fighter and follower of Lokmanya Bal Gangadhar Tilak.

Madhav Achwal designed this tower primarily in the neoclassical style, but with a touch of modernity. The structure of the central tower is triangular in plan and holds three giant clocks at a significant height to be visible from three major roads. The tower is capped with a projecting star-shaped overhang in reinforced concrete with a dome. Due to its pleasant combination of pure geometrical shapes and excellent proportions, the clock tower was among the first masterpieces of post-independent India. It is still considered a source of pride and glory for Kalyan, a befitting gift from Madhav Achwal, the son of the soil.

Besides his architectural practice, Madhav Achwal had a deep love for academics. Therefore, in 1954, he joined the Department of Architecture at Kala Bhawan at Maharaja Sayajirao University (MSU) of Baroda in Vadodara to fulfil his inner urge. There, he primarily taught subjects such as building construction, architectural design, and town planning. It is known that Madhav Achwal was an excellent teacher who had a knack for simplifying complex subjects and making them understandable to his students. His eloquence was evident, and he provided students with an enjoyable experience while studying architecture. He always made an effort to make students appreciate the subject by going beyond the rigid curriculum.

Due to his distinguished career and architectural stature, Madhav Achwal brought renowned architects to the college to share their knowledge and experience with the students. These architects included BV Doshi, AJ Talati, Anant Raje, Suryakant Patel, and others. The visits of these stalwarts raised the overall standard and outlook of the department. Considering his selfless contribution to the Department of Architecture at MSU, Madhav Achwal was promoted to Principal in 1962.

In addition to his teaching and administrative duties, Madhav Achwal actively pursued his professional architectural career. Although he has not completed many projects, the ones he has are outstanding buildings in terms of innovation, function, aesthetics, clarity, purity, stability, and timelessness. Madhav Achwal stated, "Architecture is like a delicate stringed musical instrument. It can produce chimes to suit all our moods if played right."

Prominent among his works are the Agriculture College of Anand (now Anand Agriculture University),

Kimaya Cultural and Recreation Centre—a view from inside.
Source: Surendra Ghaskadbi

Kimaya Cultural and Recreation Centre in Fergusson College, Pune.
Source: Garad Parmeshwar

EME Temple in Vadodara, Allenby School in Vadodara, some buildings of the Dairy at Anand, the Town Hall in Mahuva, all in Gujarat, and the Kimaya Cultural and Recreation Centre in Fergusson College, Pune, Maharashtra.

Built in the early 1960s, the Agriculture College of Anand is now a part of the expansive Agriculture University Campus. The college complex has been designed in a horseshoe pattern, with a large courtyard at its centre. Numerous academic blocks radiate outward, showcasing the visionary approach of architect Madhav Achwal. This design allows for future expansion while preserving the original character of the campus.

The EME Temple is another beautiful creation by this architect. It is located in the Cantonment area of Vadodara city. The EME Temple, also known as the Dakshinamurthy Temple, is dedicated to Lord Shiva. It was built in 1966 by the Indian Army's Electrical and Mechanical Engineering Wing under the supervision of Brigadier AF Eugene, a Christian. The temple was designed and built as a symbol of secularism in India,

Madhav Achwal Gold Medal for a lifetime contribution to architectural education.
Source: Jit Gupta

as it displays various features of all major religions in the country.

The temple's main building is an outstanding modern structure, i.e., a geodesic dome clad in aluminium sheets both outside and inside. It seems Madhav Achwal might have taken inspiration from Buckminster Fuller. Interestingly, there are no walls enclosing the temple. The dome rests on four piers embedded in the ground, with four arched openings in between. The temple is located amidst a lush green landscape with coloured fountains that create a peaceful ambiance. The temple's concept, design, and build quality can be equated with one of the best masterpieces of post-independent India. It showcases Madhav Achwal's deep-rooted ingenuity and foresight.

He conducted a similar experiment by designing a small pavilion on the premises of Fergusson College, Pune. The Kimaya Cultural and Recreation Centre is a covered assembly platform, open on the sides. Students gather here for cultural, recreational, or academic activities. The main structure of the centre is square in plan, with a reinforced concrete folded-plate canopy supported by four feet. The pavilion provides a tranquil setting for social gatherings, situated in a spacious open area adorned with large trees. Despite its modest size, it exemplifies Madhav Achwal's sensitive approach to harmonising nature and the built environment.

On the 2500th birth anniversary of Gautama Buddha, the Government of India launched an international architectural competition in 1956. Madhav Achwal participated in a collaboration with renowned sculptor Sadashiv Sathe. The jury deemed their design proposal the best, and as a result, Madhav Achwal was invited for an interview. During the interview, the jury members requested a change: the provision of a concrete dome instead of the glass

Marathi Books by Madhav Achwal: American Chitrakala, Kimaya, Darkroom, and Jaswand.
Source: Mauj Prakashan Griha

Prabhakar Oak Clock Tower is capped with a projecting star-shaped overhang with a dome.
Source: Maya Parmar

dome proposed by Madhav Achwal. However, since the glass dome was the core concept of the design, he firmly rejected the suggestion without any fear of losing the project. This incident exemplifies the principled nature of Madhav Achwal.

He was widely travelled and, thus, had a global vision of the problems faced by humanity and their possible solutions within financial and social constraints. In 1960, Madhav Achwal received a scholarship from the French Government to study European architecture and visited France for six months. After that, he had the opportunity to go to England through the British Council. Madhav Achwal also visited Africa and Latin America with the support of UNESCO. There, he studied the problems of shelter in underdeveloped countries and ways to solve them. In 1974, he was sent on a tour to South America with a grant from the Ford Foundation. From there, he gathered much information on 'Low-Cost Housing'. After that, he launched a department called 'Housing-Education-Action-Research-Training Heart. Financial assistance for this was provided by UNICEF and Oxfam.

Equipped with abundant knowledge, Madhav Achwal contributed to solving the problems of slums in Vadodara. He brought to the attention of the Municipal Corporation that slums cannot be eradicated, no matter how many measures are undertaken. Slums can be improved by providing proper sewage and water supply facilities. Accordingly, the Municipal Corporation conducted many slum improvement experiments under the guidance of Madhav Achwal. He intensely studied the subject of 'Low-Cost House Construction' by saving the cost of construction using local materials. Madhav Achwal was instrumental in establishing the 'Baroda Citizens Council', which involved local people and organisations in the affordable housing experiment.

There was another facet of Madhav Achwal about which the Indian architectural fraternity is unaware. He was a renowned litterateur (*Sahityakaar*), Marathi writer, and author of about half a dozen Marathi books. Prominent among these are *Kimaya*, *American Chirakala*, *Patra*, *Darkroom*, and *Jaswand*.

Since I do not know the Marathi language, like many other readers, commenting on Madhav Achwal's literary works would be inappropriate. However, I am confident that his work is of high merit. To overcome this limitation, I appeal to Madhav Achwal's publishers, college, university, IIA, and individual researchers to have his books translated into English and Hindi in order to reach a wider audience. This would be a fitting tribute to this lesser-known legend, whose life was tragically cut short by his untimely demise on January 21, 1980, at the age of 55.

Long live the memories of Madhav Achwal.

Ar. Sarbjit Singh Bahga (A 11822) is a Chandigarh-based architect and author. He has 44 years of experience designing various types of buildings, complexes, and large campuses. A monograph on his selected works, Modern Regionalism: The Architecture of Sarbjit Bahga, has been published. Bahga is also a keen researcher and a prolific architectural writer, with 12 books to his credit.
Email: bahga.sarbjit@gmail.com

ARTICLE

Architectural Challenges in Punjab: Navigating Tradition and Modernity

By Ar. Guneet Singh Khurana

1. Introduction

Punjab, a state in northern India, boasts a rich cultural tapestry and a vibrant architectural legacy. From Mughal forts to Sikh Gurdwaras and colonial-era buildings, Punjab's built environment and structures stand as testaments to the region's diverse history and cultural identity with a unique canvas of architectural exploration. However, as the state marches towards mordenisation, it faces significant challenges in the realm of architecture, navigating the delicate balance between preserving its cherished traditions and embracing contemporary trends. Factors like neglect, inadequate maintenance and urban encroachment have led to the decay and demotion of numerous heritage sites. This article delves deeper into the specific challenges and opportunities inherent in this dynamic region with a rich historical and cultural heritage. Architects in Punjab play a pivotal role in shaping not just the physical environment but also the socio-cultural and economic future of the region, contributing to a sustainable and harmonious built environment. We will address the obstacles that architects in Punjab encounter and the innovative solutions being proposed to address them.

2. Specific Challenges and Considerations

Punjab's architectural landscape bears the legacy of ancient times, with vernacular designs crafted for comfort and harmony with the environment. As urbanisation surges, architects grapple with the delicate task of balancing modern infrastructure demands while preserving the unique cultural identity ingrained in Punjab's architectural history. However, simply replicating global trends without considering the local context can lead to a loss of cultural identity and a sense of placelessness. This presents a crucial challenge: how can Punjab navigate the delicate balance between preserving its architectural heritage and embracing the needs of a rapidly evolving present?

a. Rapid Urbanisation and Infrastructure:

Punjab's rapid urbanisation has led to the uncontrolled growth of cities, leading to increased demand for infrastructure, jeopardising heritage buildings and traditional settlements. Urban sprawl often consumes green spaces and necessitates the demolition of historic structures to make way for modern developments. Balancing the need for modern amenities with the preservation of the

Figure 1: Front Facade of Khalsa College, Amritsar
Source: https://twitter.com/moomjamma/status/1092272237787402240/photo/2

Figure 2: Dome of Golden Temple main shrine masked in the Map of Punjab
Source: https://amardeepphotography.com/domes-of-golden-temple/

cultural and historical fabric of cities is a complex challenge. Architects are tasked with designing spaces that cater to the contemporary needs of the population while incorporating elements that reflect Punjab's cultural identity. This rapid transformation poses a significant threat to Punjab's unique heritage and architectural landscape.

b. Neglect and Inadequate Maintenance:

Punjab is rich in architectural legacy, having structures from the Mughal and British Eras. The Havelis and the religious institutes of the past can be seen all across the old streets of cities and towns in Punjab. Many historical buildings and sites suffer from neglect and inadequate maintenance, leading to their deterioration and eventual decay. Lack of awareness and resources for proper preservation contribute to this problem, jeopardising the state's architectural heritage. The preservation of heritage structures poses a nuanced challenge, requiring architects to implement adaptive reuse strategies that breathe new life into historical sites.

c. Lack of Comprehensive Planning:

The absence of comprehensive urban planning strategies often leads to haphazard development, neglecting the integration of historical and modern elements. This results in a disjointed cityscape that fails to reflect the state's cultural continuity. There is a delicate balance between preserving the heritage of Sikh architecture and incorporating modern urban design techniques in the state of Punjab. Architects and planners must ensure that new interpretations remain respectful of the faith's traditions and values.

d. Homogenization and Loss of Identity:

Uncritical adoption of global architectural trends without regard for the local context can lead to a homogenised cityscape that lacks character and distinctiveness. This homogenization poses a threat to Punjab's unique architectural identity and cultural heritage. Striking a harmonious balance between tradition and innovation is a perpetual quest, making it essential for architects to find ways to integrate traditional elements into contemporary designs.

e. Environmental Concerns:

Modern construction often utilises unsustainable practices, leading to environmental degradation. Integrating sustainable practices into both traditional and contemporary architecture is crucial to ensure the long-term viability and environmental responsibility of the built environment. In the face of climate change which is a critical concern, architects are exploring sustainable and resilient designs to combat rising temperatures and erratic weather patterns.

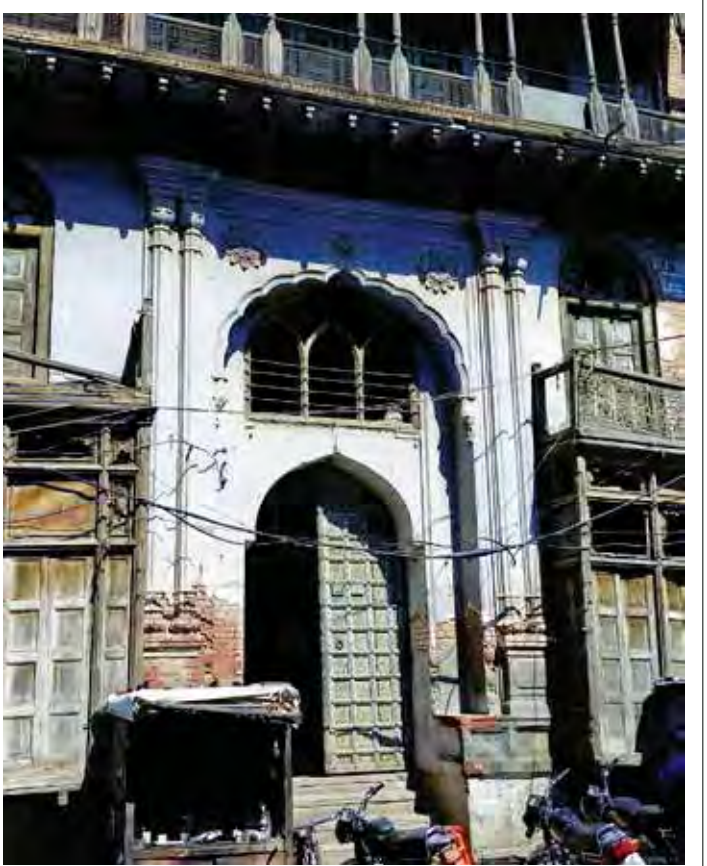


Figure 3: The deteriorated state of Old Haveli in Amritsar
Source: https://www.facebook.com/timelessamritsar/photos/a.152852569517271/207679404034587/?type=3

Figure 4: Shops and Hoardings eclipse Ram Bagh Gate
Source: https://www.tribuneindia.com/news/archive/amritsar/old-gates-around-walled-city-cry-for-attention-261302

f. Infrastructure Development and Connectivity:
Punjab's connectivity to other regions, both nationally and internationally, is crucial for its economic development. Architects are involved in designing transportation hubs, airports and other infrastructure projects that enhance connectivity while considering the visual appeal and functionality of these spaces. It also includes the development of the open spaces along the roads.

These challenges call for architectural solutions that are both innovative and respectful. It demands a deep understanding of Punjabi culture, coupled with a forward-thinking vision for sustainable development. Can we design buildings that stand as bridges between the past and present, honouring tradition while shaping a future that is both prosperous and ecologically responsible?

3. Opportunities for Progress
Striking a balance between traditional architectural styles and modern innovations is a constant challenge for the Architects in Punjab and requires careful consideration. Modern interpretations must remain respectful of the faith's heritage and values, ensuring continuity with past generations. Affordable housing solutions, transportation hubs and connectivity are also at the forefront of architectural endeavours. The challenge lies in finding a harmonious balance between preserving the past and embracing the future. This can be achieved through the following approaches:

a. Adaptive Reuse:
Breathing new life into historical buildings by adapting them to contemporary needs offers a sustainable and culturally sensitive approach. This can revitalise historical structures while preserving their architectural heritage and integrating them seamlessly into the modern cityscape. Architects are exploring adaptive reuse strategies, such as converting old havelis into boutique hotels or

Figure 5: Restored Gol Kothi, Kapurthala
Source: https://images.hindustantimes.com/img/2021/10/07/550x309/ff15677e-27a4-11ec-b7f8-760cd0963677_1633635063602.jpg

Figure 6: Gach - Tukri Work at Gurudwara Akal Takhat Sahib, Amritsar
Source: Author

Figure 7: Arial View of the Golden Temple Complex, Amritsar
Source: https://www.designingbuildings.co.uk/wiki/File:Goldentemple2.jpg

cultural centres, to ensure the continuity of Punjab's architectural legacy. One such example of adaptive reuse is the 185-year-old Kamra Palace, aka Gol Kothi, in Kapurthala, which was constructed in 1833 by Raja Fateh Singh of Kapurthala princely state and has been restored to its former glory to have a restaurant.

b. Contextual Architecture:
Modern buildings should be designed in a way that complements and respects the surrounding historical context. This can be achieved through the use of local materials, traditional design elements and a sensitive approach to scale and massing. Apart from the past existing structures, architects are using the old construction styles and designs for their projects like resorts, government institutes and luxury hotels. Architects are also experimenting with construction techniques to create a contemporary interpretation of traditional elements like the Charbagh and the dome.

c. Community Engagement:
Actively involving local communities in the architectural planning and design process ensures that the needs and aspirations of the people are reflected in the built environment. This fosters a sense of ownership and responsibility towards the preservation of cultural heritage.

d. Promoting Traditional Crafts and Techniques:
Supporting and promoting traditional craft skills and techniques in construction contributes to the preservation of cultural heritage and generates livelihood opportunities for local artisans. This ensures the continuation of traditional building practices and adds a unique aesthetic to the architectural landscape.

e. Affordability and Sustainable Practices:
Integrating and implementing sustainable practices into both traditional and modern architecture is essential. This ensures the long-term viability and environmental responsibility of the built environment. Sikh Gurudwaras and other religious institutions are increasingly incorporating environmentally friendly features like natural lighting, rainwater harvesting and solar energy to reduce their carbon footprint and create a more sustainable future.

f. Public-Private Partnerships:
Collaboration between government agencies, private developers and cultural institutions can provide the necessary resources and expertise for effective preservation and development projects. This fosters a shared responsibility towards safeguarding Punjab's architectural heritage.

4. Case Studies

Punjab's architectural landscape is a tapestry woven from ancient wisdom and modern aspirations. Balancing these contrasting forces throws up fascinating challenges. Several successful projects in Punjab demonstrate the potential for a harmonious blend of tradition and modernity.

a. Golden Temple Complex Restoration:
The meticulous restoration of the Golden Temple complex in Amritsar exemplifies the successful integration of modern amenities and heritage preservation. The project utilised traditional materials and techniques while ensuring accessibility and environmental sustainability. The use of traditional art styles and the blend of modern inlay techniques respect and complement the surroundings and stand as a testament to the region's rich history and cultural identity. This project serves as a model for

Figure 8: Embellished semi-precious stone inlay entrance Darshani Deori - Golden Temple, Amritsar
Source: Author

Figure 9: Restored structure of the Gobindgarh Fort, Amritsar
Source: https://amritsartourism.org.in/gobindgarh-fort-amritsar

sensitive restoration and adaptive reuse of historic structures.

b. Gobindgarh Fort:

In order to revitalise a neglected 18th-century fort while preserving its historical significance and creating a vibrant cultural hub, an adaptive reuse concept was adopted which transformed the fort into a museum, amphitheatre and heritage education centre. Traditional mud brick structures were stabilised and contemporary pavilions were sensitively inserted, respecting the fort's character. The impact of this was such that the project successfully breathes new life into a historical landmark, demonstrating how careful conservation can create sustainable and engaging public spaces.

These case studies represent just a glimpse into the ongoing dialogue between tradition and modernity in Punjab's architectural landscape. Each project demonstrates the importance of contextual sensitivity, community engagement, sustainable practises and creative adaptation. These case studies showcase the diverse approaches being taken to navigate the architectural challenges in Punjab. They offer valuable lessons for creating a future that respects the past while embracing the possibilities of the present.

c. Town Hall:

In Amritsar's architectural landscape, the once-neglected Town Hall has risen from a relic to a vibrant cultural hub, showcasing a masterful blend of heritage preservation and modern adaptation. Its intricate Victorian facade, meticulously restored, now houses the poignant Partition Museum, where historical artefacts and interactive displays whisper tales of human resilience amidst adversity and food joints for the travellers to relish the local cuisines. This adaptive reuse reintegrates the Town Hall into

Figure 10: Night view of the Town Hall Building, Amritsar
Source: https://www.tribuneindia.com/news/amritsar/experience-the-night-outs-406555

contemporary life, not just as a physical landmark but as a space for remembrance, education and community engagement. The success of this project serves as a beacon, illuminating a path where Punjab's architectural past and present can coexist, weaving a tapestry of shared history and a vibrant future for generations to come.

5. Conclusion

Punjab's architectural landscape stands at a crossroads. In addressing the challenges, architects in Punjab are not only contributing to the physical landscape but also shaping the cultural and socio-economic future of the region. The state has the unique opportunity to create a built environment that respects its rich heritage while embracing contemporary advancements. By adopting a holistic approach that combines cultural sensitivity, sustainable practises and community engagement, Punjab can chart a path towards a vibrant and prosperous future. As the state continues to evolve, the architectural community along with planners,

policymakers, and the people of Punjab will be at the forefront of shaping Punjab's identity. This future will be defined by a harmonious blend of tradition and modernity, ensuring that the state's unique architectural legacy continues to inspire generations to come while paving the way for a thriving and sustainable tomorrow.

6. Call to Action

Architects, urban planners, government agencies and the community at large must work together to develop and implement comprehensive strategies for preserving Punjab's architectural heritage while embracing contemporary development. This collaborative effort, innovation and commitment will ensure that the state's built environment continues to evolve as a testament to its rich history and cultural identity.

Ar. Guneet Singh Khurana *(A21992) is a practicing architect from Amritsar, running his design firm, DESIGN ARCH. He completed a B.Arch. with honours from Guru Nanak Dev University, Amritsar. He is also the founder of Archistudent.net, an online resource platform for students of architecture and has organised various sessions for architects and students across the country.*
Email: ar.guneet@gmail.com

ARTICLE

Government Collaboration with Architects and Planners to Design Better Cities

Commissioning of Public and infrastructure Projects through Open, Public Design Competitions

by Rahul Kadri

India is in the throes of a major urban transformation; an endeavour that promises to reshape our nation's future. The past few years have seen a slate of large-scale urban development and public infrastructure projects commissioned and/or completed in our country, which include the Sabarmati Riverfront development in Ahmedabad, the Dharavi slum redevelopment in Mumbai, and, of course, the much-celebrated redevelopment of the Central Vista in New Delhi.

These projects already have or will transform the face of their respective cities and have a tremendous impact on people's lives. They also have the potential to redefine urban living for years to come and catalyse economic development. However, some of these projects are based on questionable design and urban planning practices, which begs the question: are the processes of commissioning these projects necessarily effective towards realising the aspirations for which they were conceptualised? Are we harnessing the best design talent and expertise that our country has to offer?

A Lack of Vision and Innovation

Good public and social infrastructure in our neighbourhoods and cities can bring people joy, make our cities better, safer, and more sustainable, and create a better experience for citizens.

Many governments and planning authorities in India have and are continuing to invest large capital to upgrade urban infrastructure. Recently, the National Housing Bank (NBH) operationalised the ₹10,000-crore Urban Infrastructure Development Fund[1] (UIDF) aimed at supplementing the efforts of state governments for infrastructure projects in tier-2 and tier-3 cities. Permissible activities under the UIDF include a 'comprehensive area development project'[2], under which five types of works can be sanctioned — transit-oriented development (TOD), heritage conservation, preparation of local area plan for decongestion, planning of greenfield areas and setting up of parks and open gyms.

I believe that these efforts to create better, sustainable and safer cities are commendable. Yet, it is imperative to recognise that without proper vision and thought, consultation with professionals, and processes for commissioning, the risk of futility and mediocrity looms large, with projects not necessarily effective at addressing the challenges or realising the aspirations for which they were set out.

1. https://www.thehindubusinessline.com/economy/nhb-operationalises-10000-crore-urban-infrastructure-development-fund/article67061221.ece
2. https://theprint.in/india/governance/rs-10000-cr-infra-fund-rolled-out-for-tier-2-3-cities-how-states-can-get-the-most-out-of-it/1700170/

For instance, the Mumbai Coastal Road Project was conceptualised to address the city's transportation challenges and over the last 4 years, the Brihanmumbai Municipal Corporation (BMC) has already spent over 12,000 crores on it. However, it will not make life any easier for the vast majority of Mumbai citizens since it will primarily benefit a minuscule percentage of the city's population who own cars.

Additionally, over recent months, it has become clear that this project will give rise to 175 acres of public spaces – spaces that have the potential to be transformed into parks and open spaces for lakhs of people, but the process and status of appointing an architectural or planning team to bring this vision to life remains unclear.

Open Design Competitions for Effective Responsible Urban Development

Some of the best-designed buildings and projects in India, such as the Chhatrapati Shivaji Terminus in Mumbai, the Chambal Riverfront project in Kota, Rajasthan, the Buckingham Canal project in Chennai, and the National War Memorial in Delhi, were commissioned through design competitions and have, over time, become significant parts of their respective city's culture and landmarks. Globally, projects such as the Sydney Opera House in Australia, the Gardens by the Bay in Singapore, and the High Line in New York City were also commissioned similarly and today shine as success stories for their cities and people.

Governments in India, whether at the centre or at the state level, need to undertake a similar approach to the process of designing and building infrastructure for all upcoming public and infrastructure projects – open public competitions to attract some of the best designers, architects, and urban planners, and therefore, the best ideas, designs, and solutions. This will serve as a great opportunity for several practitioners from across the country to participate in such competitions and work collectively with the government to build world-class landmarks and improve the country's infrastructure and cities.

The Council of Architecture (COA) – a statutory body constituted by the Government of India under the provisions of the Architects Act, 1972 – has laid out guidelines[3] for organising such competitions. These guidelines are set out to ensure that competitions are fair and transparent and safeguard the interest of both – the promoter and architects. They also emphasise the importance of a clear and concise brief, having a fair and impartial jury, and having a clear, transparent selection process.

A Long Way to Go

While some governments and planning authorities across the country have conducted design competitions and/or invited respected practitioners to submit proposals for public projects in the recent past, there is more that needs to be done.

For instance, the Amaravati capital complex and city planning project, even though it stands shelved today, presents a distressing example of how governments can do lip service to the idea of consultation and engagement with the professional community. Expert recommendations on the feasibility of the project were dismissed at multiple stages, and there were frequent invitations, appointments, dismissals and reappointments of professionals that were seemingly politically motivated.

In another instance, the BMC invited architects and urban designers to submit proposals for improving streets in Mumbai in 2019. Five design firms were selected as winners. However, in January 2021, the firms were notified that their services were not required any more. The BMC has since invited tenders for a project along similar lines.

Our city's future is inextricably linked to the spaces we create today. The places we inhabit, the structures we encounter daily, and the cityscapes we navigate shape our experiences and our collective identity. It is within this context that we must raise a vital issue that concerns all citizens – the need for reform in the way public architecture and city infrastructure projects are commissioned.

Rahul Kadri (A08706), Partner and Principal Architect at IMK Architects, an architecture and urban design practice founded in 1957 and headquartered in Mumbai. Mr Kadri is a noted expert on subjects like Urban Development and Policy Making, Public Transport systems, Housing and Slum Redevelopment, Ecological Planning and new-age Healthcare design.
Email: media@imkarchitects.com

3. https://coa.gov.in/index1.php?lang=1&level=2&sublink-id=261&lid=240&key=guidelines

ARTICLE

Quila Sarai: Tracing the Timeless Elegance of Sultanpur Lodhi's Architectural Gem

By Ar. Shruti H. Kapur and Ar. Sukruti Dogra

Location	:	Sultanpur Lodhi, Punjab
Usage	:	The fort, with its Lahori gate and Delhi gate
Age	:	800 years
Building Type	:	Administrative/Recreational

1. INTRODUCTION

Sultanpur Lodhi, situated in District Kapurthala. Punjab, holds immense historical and cultural significance. The Quila Sarai stands prominently in this town, serving as a testament to the region's historical importance. The fort gained additional prominence during the 16th century when the Mughal emperor Shah Jahan is believed to have undertaken its rebuilding. Beyond its architectural significance, Quila Sarai played a pivotal role in education during its heyday. It served as the place where Shah Jahan's sons, Aurangzeb and Dara Shikoh, pursued their studies, adding an educational chapter to the fort's multifaceted history. The fort, therefore, not only stands as a physical structure but also embodies the intellectual pursuits and cultural exchanges of its time.

2. ENTRANCE

The monumental scale of the gate is a deliberate architectural choice, intended to evoke a sense of grandeur and magnificence. It becomes a prominent focal point, attracting attention and emphasizing the importance of the entrance even from a distance. The multi-level design of the gateway adds an element of visual interest. Each level contributes to the overall aesthetics of the structure, creating a sense of complexity and architectural sophistication. This intentional layering of elements serves to enhance the overall impact of the gateway, making it a striking feature in the architectural ensemble of Quila Sarai.

3. ARCHITECTURAL FEATURES OF THE COMPLEX

The Quila Sarai complex exhibits distinctive architectural features that reflect a blend of Mughal and British influences. The site, nearly square in shape, is characterised by two entrance gates and four octagonal turrets, contributing to its structural uniqueness. The general typology of Sarais along the Delhi-Lahore road reveals a specific arrangement of rooms for travellers along the inner side of the enclosing wall. Originally, the complex might have boasted around a hundred rooms, but as of 1999, only three were still standing and presently none remain on the site. The adaptive reuse of the site has transformed it into a local police station. The architectural elements within the complex showcase a fusion of Mughal and British styles, evident in the forms of internal rooms, galleries, and external courtyards. The following features contribute to the architectural richness of Quila Sarai:

Arches: The presence of arches, a characteristic element of Mughal architecture, adds a graceful and aesthetic touch to the complex.

Figure 1: Magnificent view of Quila Sarai

Domes: Domes, a staple in Mughal architectural design, contribute to the overall grandeur of the complex.

Minarets: The inclusion of minarets reflects the influence of Islamic architecture, enhancing the visual appeal of the site.

Chatri: Chatri, or elevated pavilions with domed roofs, adds a distinctive element to the architectural landscape.

Monumental Scale: The complex is marked by a monumental scale, emphasising its historical and cultural significance.

The internal buildings within the complex are a testament to the dynamic architectural influences shaping the region, providing a tangible link to the past and a visual narrative of cultural exchanges over time.

1. Lahore Gate
2. Octagonal Turrets
3. Delhi Gate
4. Mosque
5. Rooms
6. Well
7. Town Hall
8. Old Jail
9. New Jail

4. ENTRANCE GATE

The gate is the first impression of the building entered. The front gate of Quila Sarai stands at a height of 37' with a sense of grandeur and strength. The monumental scale of the gate adds a sense of grandness and highlights the entrance from a distance. The levels in the gateway create interest.

The plan: The plan of the front gate is symmetrically balanced about the central axis of the passage. The entrance is 13'-9" wide and divides the bottom levels into two parts. The stairs climb up from the rear side of the gate, reaching the second level having two chambers on both sides. The third level has a terrace at the rear and two chambers at the sides. Its central axis is supported by the entrance arches beneath. A stair from this terrace leads to the uppermost terrace with two kiosks placed centrally on the projected balconies from octagonal towers at both sides.

The elevation: The Entrance Archway's huge scale catches the attention of the viewer at first sight. The elevation is almost symmetrical along the central axis of the archway. False elevation is created through the use of arches, niches and other elements. A glimpse of Sikh Architecture comes through the sight of arches, kiosks and the domes in the Quila Sarai.

Elements:

Arches: Arches are the main highlighting elevational feature. The use of the different types of arches like the Pointed Arches and Cusped Arches can be observed.

Kiosks: Two kiosks are placed centrally on the projected balconies from octagonal towers on both sides. They help in achieving the huge scale of the space.

Domes: The domes in the kiosks resemble the elements of Sikh architecture.

Building material/ Facade details: Exposed Nanakshahi brick cladding /brickwork.

As visitors approach the entrance, they are greeted by a structure that not only symbolises the historical significance of the fort but also sets the tone for the rich architectural experience that awaits within. The gateway, with its towering presence and intricate design, stands as a testament to the cultural and historical legacy encapsulated by Quila Sarai. Together, these elements not only enhance the aesthetic appeal but also reflect a thoughtful fusion of design and cultural significance in this architectural endeavour.

5. SYMMETRICAL BRILLIANCE: THE PLAN OF QUILA SARAI FRONT GATE

The meticulous planning of the front gate at Quila Sarai unfolds as a masterclass in symmetry and balance, captivating visitors with its harmonious design. The entrance, measuring 13'-9" in width, serves as the focal point, creating a division in the lower levels along the central axis of the passage. As one ascends the stairs from the rear side of the gate, a carefully curated spatial experience unfolds. The second level reveals two chambers on both sides, contributing to the architectural equilibrium. The third level introduces a terrace at the rear, flanked

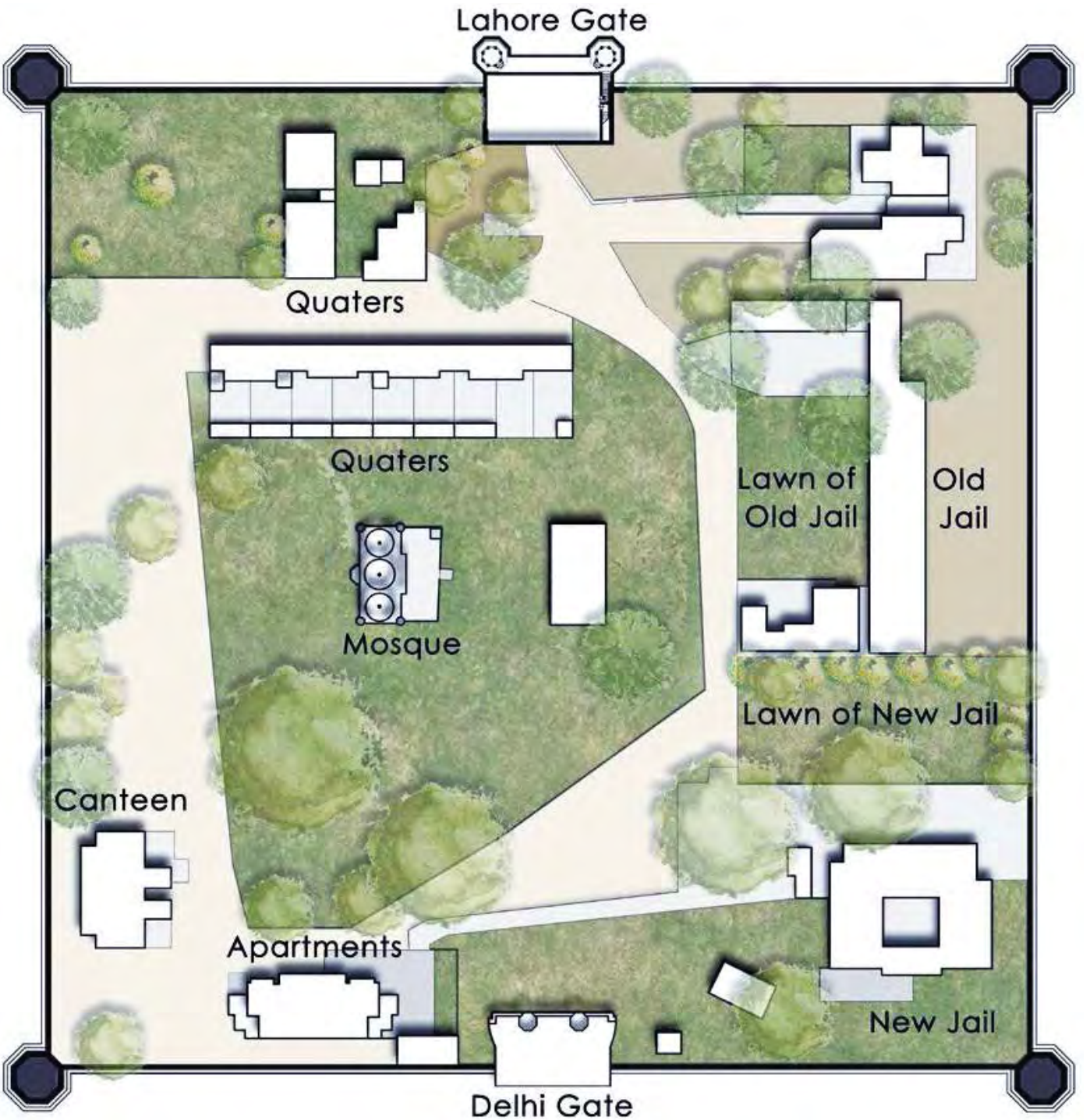


Figure 2: Site plan of Quila Sarai

by chambers on either side, creating a seamless flow of design elements.

6. ELEGANCE IN SCALE: THE MAJESTIC ELEVATION OF QUILA SARAI'S ENTRANCE ARCHWAY

The entrance archway at Quila Sarai stands as a testament to grandeur and architectural finesse, commanding attention with its colossal scale. The beholder's gaze is immediately drawn to the sheer magnificence of the archway, creating a lasting impression.

The elevation, meticulously designed, unfolds in almost perfect symmetry along the central axis of the archway. The strategic use of arches, niches and other architectural elements contributes to the creation of a false elevation, captivating onlookers with its visual allure.

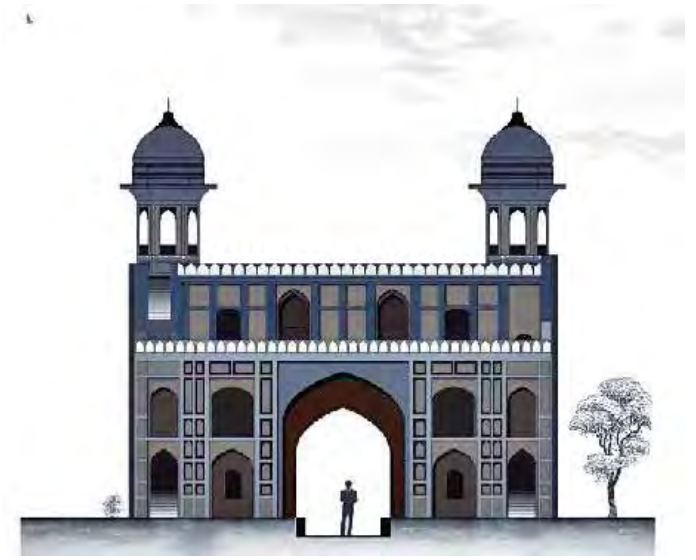


Figure 3: Rear Elevation

Figure 4: Front Elevation of the Gate

In this architectural marvel, glimpses of Sikh architecture come to life through the ornate detailing of arches, the presence of kiosks and the graceful domes that punctuate the skyline of Quila Sarai. Each element plays a role in crafting an elevation that not only stands as a work of art but also narrates the historical and cultural significance embedded within the walls of this monumental structure.

As one approaches the entrance, the elevation unfolds as a captivating story, inviting admiration for the meticulous craftsmanship and thoughtful design that define the architectural legacy of Quila Sarai.

7. QUILA SARAI: OLD PRISON

Location: The building is near the entrance (Lahore Gate) of the complex. It has a Mosque opposite to it.

History**:** It has been built before the Terrorism era. Lahori Gate and Delhi Gate - Mughal Emperor Shahjahan is learnt to have rebuilt it in the 16th century.

Architectural Style**:** Mughal Architecture

Features: Use of segmental Arches, High-level Plinth, Perspective and Repetition of cells

Architectural Features:

- Transparency in the building plan.
- Linear plan: Better vision for the jailer to keep check.

It consists of 2 jails and 6 courtrooms. Room no. 3 is named 'Kot' and room no.s 13, 14 and 15 were named 'Malkhana'. Two jails were named 'Mardana Hawalat'. Room dimensions are 12' by 14'-6".

Natural light: The planning promotes usage of natural light inside the cell, throughout the day.

Ventilation: Good air circulation between every single cell. This building consists of a courtroom and jails.

A window (2' by 13'-6") is centrally placed on the rear wall of the room. One of the walls has a recess in it.

Door opening: 3'-6".

Corridor width: 7'-9".

Most of the construction is along the contour since there is a suitable gap between two consecutive contours for a particular building unit.

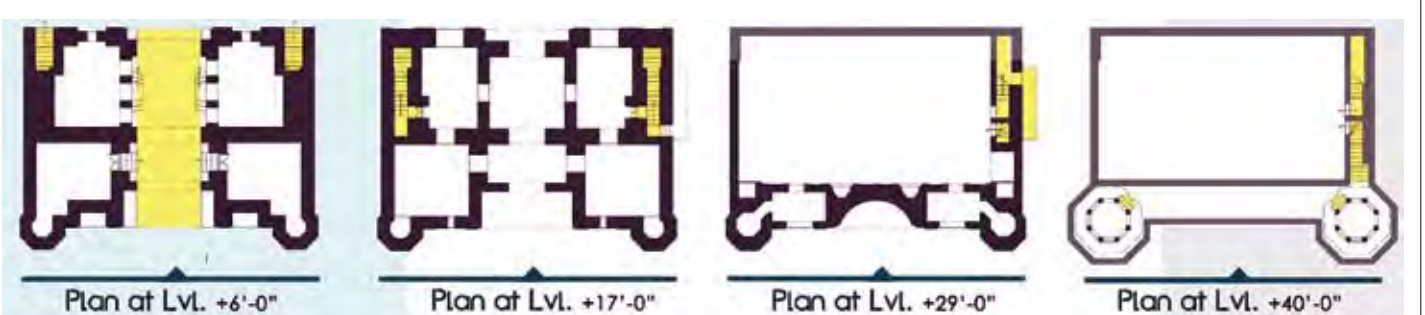


Figure 5: Plans of the Front Gate of Quila Sarai

Figure 6: Monumental Scale of Quila Sarai

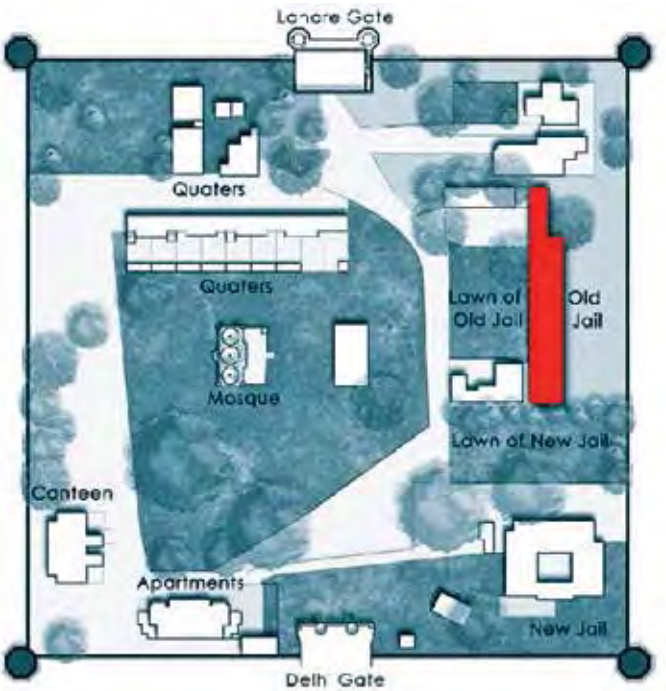


Figure 7: Site Plan of the Old Prison

Figure 8: Layout Plan of the Old Prison

There are 22 arches forming the elevation of the building. These are semi-circular arches with a height of 5'. These are semi-circular arches. The height is 15' approx. There is an arch which is used to divide the corridor into two parts.

8. CONCLUSION

In the heart of Sultanpur Lodhi, the Quila Sarai stands as more than just a structure of historical and architectural significance; it encapsulates the rich tapestry of a bygone era. As we traverse its pathways and immerse ourselves in the grandeur of its gates, we unearth stories that span centuries.

In the adaptive reuse of its spaces, from a once vibrant hub of a hundred rooms to the present-day local police station, Quila Sarai demonstrates resilience and adaptability. It's a living monument that not only stands as a testament to the past but

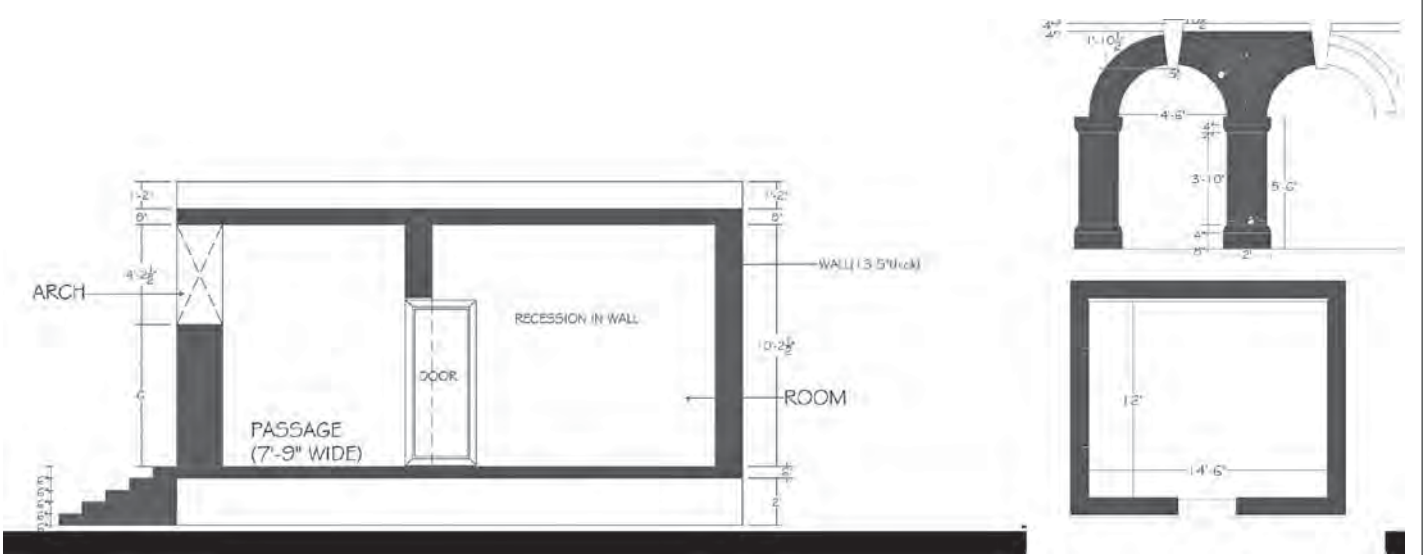


Figure 9: Sections of the Old Prison

Figure 10: Magnificent View of the Old Prison

continues to play a role in the present, connecting generations and bridging the gap between history and modernity.

Quila Sarai, with its monumental gates, intricate architecture and rich history, invites us to reflect not just on its individual elements but on the broader narrative of a region that has witnessed the ebb and flow of time. As we bid farewell to the echoes of the past resonating within its walls, we carry with us the timeless elegance and cultural legacy that define Quila Sarai in Sultanpur Lodhi.

All Images courtesy: Authors

Ar. Shruti H. Kapur (A18185), a visionary architect with over two decades of expertise, is a trailblazer and founding member of CT Institute of Architecture and Planning. Seamlessly integrating technical intricacies with emotive academic prowess, she redefines the boundaries of innovation and creativity, leaving an indelible mark on the architectural landscape.
Email: shrutihkapur@gmail.com

Ar. Sukriti Dogra, with a Bachelor's in Architecture and a Master's in Urban and Regional Planning, currently serves as an Assistant Professor at CT Institute of Architecture and Planning. She blends a passion for history and landscape into her teaching approach, developing strong leadership and management skills through motivating students and managing department responsibilities.
Email: cradleofcreativity@gmail.com

Exploring the Real Estate Market: As Opportunity for Graduating Architects

By Prof. Dhiraj Nandkishore Salhotra and Ar. Smit Goghari

1. Background

Architecture has always been a multidisciplinary program. The foundation of the syllabus, formed by *Bauhaus* (almost a century ago), identified the skill sets involved in the various guilds that went into building construction, to create a broad outline of the curriculum for the Architecture program. The common perception of the program of Architecture is to do the 'Design' practice, in the domain of Architecture, though many Architects do practice Interior Design as an allied domain. Notably many of the architectural skill sets, such as analytical, critical thinking and reasoning competencies, are transferable to fields like design, management, construction, communication, planning, industrial production, sales, marketing, techno-legal advisory, risk management, green certification, project control and valuation.

On the contrary, Engineers are trained to be generic and flexible in adaptability with problem-solving skills applied to a variety of domains and prepared to undertake multiple specialisations, thus becoming the most rational choice for any construction company or a real estate corporation.

2. Pedagogical issues in the nurturing of an Architect

Bloom's Taxonomy is seen as a widely accepted protocol for setting up academic courses. The highest level set by the taxonomy is at the 'Create' level. In purely scientific terms, it may mean an invention or a discovery. However, when seen through the lens of architectural studies, design solutions become the highest level of creation, wherein different strategies are used by students to arrive at a design solution. This is done semester after semester, year after year for five consecutive years. A student who has applied design thinking and solution-building surely can be seen as a more versatile contributor along with being part of an architectural practice.

The skill sets and the mindsets needed to think, solve, apply and test are some of the most important skills that are developed and are essential for industries across various domains. Today, UI, UX, sales and marketing, all are being designed and tailor-made for their target audience. In such scenarios, students who have already honed these skills can be absorbed in varied domains other than architectural practice alone.

Fig. 1: Students training in traditional/non-conventional construction techniques.

Fig. 2: Students learning about modern surveying and levelling techniques during field visit

The attachment with the title 'Architect' and 'Architectural practice' has been a challenge in allowing the flexibility for a graduate to think and work towards different domains that Architects are capable of addressing. The prestigious 'Code of Conduct' that disregards many of the roles that Architects have the core competency to operate remains beyond the scope forever. The current mega-scale projects require a variety of professionals to work together coherently, understanding the nuances of the real estate industry and collaborating to share their strengths in various job roles, that do not essentially require any obligatory requirement for being a 'registered architect'.

3. Impact of Multinational Corporations in the Real Estate Industry

The trend in the Real Estate market has changed rapidly, with a large amount of finances at stake having changed the operational mode of Architectural practice. The emergence of large Multinational Companies (MNCs) into the field of Construction and Real Estate has brought many projects under one large corporate banner. The traditional concept of Architectural firms, practicing as Consultants, is now being shifted to 'in-house architects' working within the umbrella of real estate firms. These MNCs are operating with a team of professionals from a variety of backgrounds and sectors in the field of real estate.

Real estate firms have a versatile portfolio of residential developments that go beyond the apartment design. Townships, boutique hotels and homes, senior housing and hospitality are just a few examples of project diversity that are becoming part of real estate companies' project umbrella. This trend can also be seen in furniture manufacturers with pioneers like *Ikea, Livspace* and *Squareyards* setting up large-scale interior home space solutions, with their own in-house research, design and development that can give a completely new meaning to working in design firms. Various managerial, marketing and sales-related opportunities are well suited to be taken up by architects and designers as compared to a person graduating from other allied fields.

4. Challenges from the Industry for a fresher

A fresher, irrespective of the 'gained skill sets' or 'freelance experience' gathered during the internship and part-time work, is equated to 'nil'. The fresher is looked upon as a liability and a part-time arrangement for getting odd jobs done. With the proficient use of high-end software such as *Revit* and *BIM,* a fresher can address the accuracy of design solutions that minimise the need for senior (human) intervention (as required earlier). The hurdle is that experience is counted in years (like wine), while good potential/calibre freshers have to 'wait/rot' till they age enough to meet the pre-requisites of 'completed years'. This combined with the fact that pay scales have largely remained unchanged due to supply and demand issues has resulted in further stretching fresh individuals as other expenses have compounded in the same period (ironically the change in remuneration for fresher has seen a hike of only 10-15% in a cycle of each five years).

This has resulted in slower growth, premature end of talent and receiving a remark of 'job not for you as expectations are higher than the presumed industry norms' even after having requisite talents and skill sets. It's the fixed expectation from a fresher

Fig. 3: Students learning about site and construction

Fig. 4: Students learning about project and construction management

(mindset of employer) that's also a barrier rather than the focus on quality that can be brought by a fresher. Many times slow success story of the 'HR on behalf of the employer' adds to the hurdle of inability to accept the fresh talent edge.

5. Advent of Digitization era

As the world becomes ever increasingly digital, the lines between the virtual world and the real world are blurring. Gaming, Animation AR & VR all rely heavily on world-building and context-building. An architect with specific skill sets can play a vital role in such scenarios and see these as fresh avenues to venture into. The availability of technologically advanced resources allows for generating appealing forms and visuals that challenge the limits of imagination and creativity like never before. It is in current times that Architects are emerging as the innovators and leaders

Fig. 5: Institutions adopting AR AI VX in curriculum

of change that can transform any living culture beyond the nuances of the mundane. Though the demand is on the rise, the current genre of designers is being confined to the curricular constraints that are still embedded in past practices.

6. Need of the hour

Today, we see an incredible number of infrastructure and real estate projects being taken up across the country. Governments and stakeholders require a huge number of employable candidates in these domains as well to fill various responsible positions. Although it may require appearing for a professional examination or a rigorous application procedure, avenues from such initiatives cannot be ignored. These project work opportunities have both a planning and research component that gives the pursuant an opportunity to work on the ground and real-world applications. To take off, all projects require inputs from a variety of domains such as sales, marketing, finance, resource management, techno-legal, regulatory approvals and likewise. It is in such a scenario that Architects must be prepared to occupy any position that is away from the core domain of design without any apprehensions.

It is important to know that architecture education allows for vital knowledge in a plethora of key areas. A deeper understanding of one's ability and the requirements in the large market, when explored with an open mind, can allow an individual to explore fresh avenues and opportunities. Pedagogies that address marketing, finance, branding, techno-legal aspects and project management must be developed to enhance the '360 degrees' of comprehensive

development of the graduates, who are prepared to intervene in all domains of Real Estate Construction and Management. Architects are the 'best fit' for all roles that the Real Estate industry offers, the only condition is to become prepared to step out of the 'guise of comfort zones' and take the position the market has to offer and deliver a job better than those postgraduates from out-of-domain fields who are eating up the positions and delivering with lesser competence.

All Images courtesy: Authors

Prof. Dhiraj Nandkishore Salhotra (A 11237) holds M.A. (History) and M. Arch. (General). His area of research is identifying design pedagogy and creating a social response while attempting to demystify innovative ways to adopt appropriate methods in managing urbanisation. He has made presentations on sustainability and humanizing agenda at several national and international conferences and seminars. He is the Principal at Thakur School of Architecture & Planning (TSAP), Mumbai.
Email: tsap.dhiraj@gmail.com

Ar. Smit Goghari is an Assistant Professor at Thakur School of Architecture & Planning (TSAP), Mumbai. He has industry experience and being entrepreneurial, has started his own firm. He is an architectural critic and a voracious reader, committed to addressing issues of the profession. He is currently the Co-ordinator of the TSAP Career & Advisory Cell.
Email: tsap.smit@gmail.com

TRAVELOGUE

AMRITSAR
A City of Myths And Realities

By Ar. Jit Kumar Gupta

INTRODUCTION

Cities are reservoirs of skill and manpower and accordingly have been reckoned as engines of economic growth and development besides generators of wealth and major contributors to the economic health, social well-being and quality of life prevailing in any area. In addition, cities are also repositories of Cultural Heritage reflecting personality of a community over different periods of its existence. Heritage provides vital link between past and present and has important role cast in shaping the destiny of the community. These footprints of past provide us with vital information and knowledge about the ancient culture, way of

Fig. 1 : Harimandir Sahib, also known as the Golden Temple

Fig. 2: Chronological evolution of the Walled City of Amritsar
Walled City 1849

Walled City 1947

life, level of development, building techniques, use of materials, Art and Architecture besides physical, social and economic edges of a society of a particular period. Accordingly, it becomes important that these repositories of knowledge, forming irreversible links between past and present, are not only, carefully and thoughtfully, preserved but also appropriately maintained and developed in order to ensure that they are not lost to the posterity.

Walled City 2010

India with one of the longest history of human habitation and civilization spanning over a period of 5000 years has been fortunate to inherit enormous wealth of built heritage. If India has inherited enormous wealth of built heritage, State of Punjab in general and Amritsar city in particular has also followed the footprints of the great nation and state. With history spanning over 428 years, Amritsar has emerged as the premier city of the state of Punjab and is known as not only its economic but also religious and political capital. City of Golden Temple, also symbolises the spiritual heritage of the people of Punjab. Presence of Golden Temple and Jallianwala Bagh has given a unique place to this dynamic and vibrant city of Amritsar in the history of the state and the nation.

Growing from a small village, *Guru ka Chak* or *Chak Guru Ram Das,* Amritsar has emerged as the focal point of Sikh faith and is rightly called *Sifti da Ghar* (the home of all virtues). During its journey of last 433 years, Amritsar has become the premier city of the state of Punjab and is known as not only its economic but also religious and political capital. City of Golden Temple, also symbolises the spiritual heritage of the people of Punjab. Presence of Golden Temple and Jallianwala Bagh has given a unique place to this dynamic and vibrant city of Amritsar in the history of the state and the nation.

With city growth and development revolving around the Harimandir Sahib, Amritsar grew in an organic manner radiating in all directions. Rapid growth of Amritsar was witnessed during the

Fig. 3: The Golden Temple

period of Sikh *misls* in the later half of 18th century when the city was almost rebuilt. Harimandir Sahib (Fig. 1) was reconstructed with the holy tank and *parikarma*. In addition*, bangas, katras, bazaars*, forts, gardens, tanks and *havelis* came up in large number as constituents of the expanding city. Major contribution to the city built heritage came from Maharaja Ranjit Singh, greatest builder of his time, in the shape of several structures created during his regime. Encircling his summer capital with a masonry wall, having 240 watch towers and 12 beautiful gates, to safeguard the city from invaders was the most beautiful structure he created in Amritsar city, majority of which got lost after the annexation of Punjab by British. Gobindgarh Fort built at the behest of Jaswant Rao Holkar, as his additional treasury, was another monument constructed by Maharaja on a commanding site to defend the city. The fort constructed in brick and lime having number of bastions, majestic iron gates and several canons placed on the ramparts still exists but with most of its glory lost due to perpetual and constant neglect (which is under the process of restoration).

In addition to these structures, Maharaja also created Rambagh, a beautiful garden spread over an area of 84 acres on the pattern of Shalimar Garden of Lahore. Following the example of Maharaja, his courtiers also built 25 gardens spread all over the city including Bagh Akalian, Bagh Teja Singh, Bagh Rama Nand, etc., most of which have been lost to the haphazard and unplanned growth besides illegal encroachments. In addition, numerous structures were created by religious and cultural institutions all over the city. With specialized markets coming up

Fig. 4: Jallianwala Bagh Memorial

around Darbar Sahib, having its distinct character, city developed a personality of its own. Khalsa College complex created outside the city, gave heritage a new definition whereas Durgiana Temple complex enhanced the spiritual ambiance of the city. Looking at the cityscape one can clearly see it dotted with footprints in the shape of buildings, complexes and precincts defining its heritage vocabulary. Over a period of time and in the face of ever increasing developmental pressures generated due to enormous growth of population and physical expansion, built Heritage located within walled city has come under enormous threat. This threat is assuming alarming proportion due to constant neglect and misuse perpetuated over the built Heritage, both by parastatal agencies and people at large. This has led to posing serious threat to the very existence of the valuable heritage and accordingly calls for evolving appropriate strategies and framework for action for its conservation and preservation.

Fig. 5: Mosque of Khair-ud-Din

Fig. 6: Mosque of Mohammed Jan

WALLED CITY: AMRITSAR

The walled city is the most important place in the history of Amritsar where the fourth Guru Ram Das-ji constructed the sacred Golden Temple. Spread over 350 Hectare, walled city housing one sixth of population of the metropolis, with a highly complex social and cultural fabric, deserves to be considered as a distinct layer to preserve its unique and distinct physical, social, economic and historical character. With history spanning over 438 years (see Fig. 2) and marked by the presence of 52 historical buildings, walled city is considered heart and soul of Amritsar, containing narrow winding streets of Medieval pattern with state of art buildings designed under the influence of Rajputana and Islamic styles of Architecture. Walled city provides ample opportunities and challenge for giving heritage a new theme and vocabulary in the growth and development of Amritsar city. It had traditional spaces like streets, squares and common courtyards. The architectural styles, materials used for different purposes in different ways, like woodcarvings, *jali* work, etc. reflect the high level of craftsmanship.

The walled city was built on human scale i.e. a pedestrian entity. The narrow zigzag street pattern is a typical medieval planning concept and was not meant for vehicular movement. The maximum distance from one corner to another is 3 km and almost every area around Golden Temple (the nucleus of city) is within 1-2 km reach. So it can be visited by foot from the remotest corner within a time span of 25-30 minutes.

Initially, the walled city of Amritsar was punctuated by number of parks and open spaces, which over the time have been converted into commercial purpose. The area such as Hall Gate, which at present is acting as C.B.D., was initially a green open space. Likewise, Ramanand Bagh, Jhande Wala Bagh, Kesari Bagh, Bagh Akalian, etc. which were earlier green areas, have now been exploited for commercial use.

The figures above describe how parks and open spaces of the city have been eaten up by development activities, majority of which are commercial in nature. Such conversion has led to lack of breathing spaces within walled city. Walled city now suffers from acute shortage of green spaces and high degree of congestion, both in terms of human beings and buildings. Strategies need to be evolved to stop further conversion of land use to commercial and sub-division of land in order to restore old glory of walled city and open spaces wherever possible.

The walled city of Amritsar has a rich heritage in the form of historical buildings/areas, gardens, artifacts, townscape and streetscape. However, with the changing life styles and priorities of the living community, all are in state of neglect. The threats posed to these areas and buildings are misuse, alteration in the architectural fabric, with large number of additions and alterations made. So far, no effort has been made at the local level to preserve them.

(I) HERITAGE STRUCTURES IN THE WALLED CITY

- ***Golden Temple:*** The highest seat of the Sikh religion, the holy Golden Temple (see Fig. 3) is the nucleus of the walled city. It was the place from where Amritsar as a settlement originated. The living monument of spiritual and historical traditions

Fig. 7 : Hall Gate

Fig. 8 : Hall Bazaar

of the Sikhs, the Hari Mandir, popularly called the Golden Temple, has been a source of inspiration for Sikh community ever since it was founded. It is considered as the fifth most-revered place in the world and is visited by large number of tourists and pilgrims. Hari Mandir is a small structure, having most beautiful proportions, standing in the huge water tank called *Sarovar.* The building has beautiful carvings and engravings on the walls. Outside, the building is cladded with the Golden *patras.* It has domes and *chattris* speaking of the typical Punjabi architecture. The building is approached through a passage constructed over the sarovar. The approach to the building is through four majestic gates. It is a huge complex which comprises of not only *Darbar Sahib* but also *Akal Takht Sahib*, *Langar* Hall, *Manji Sahib*, various *Sarais* and *Bungas.*

At present various issues like parking, congestion on approach roads have arisen. Majority of which are being addressed now. There is an immediate need

Fig. 9 : Saint Paul's Church

of proposing pedestrianization, land use freezing, demolition of shops, etc., which in future may disturb the view/ aesthetics of Golden Temple.

- ***Jallianwala Bagh:*** Jallianwala Bagh (see Fig. 4) is located in close vicinity of Golden Temple. The place has great importance and reverence in the freedom struggle of India. It was the place where on the *Baisakhi* day large number of Indians who had gathered to listen to freedom speeches were fired upon indiscriminately without any warning, killing large number of innocent people. The place is marked by a very narrow entry which was used by General Dyer to block the exit and bring guns/ armed people to fire on the innocent people. The place is revered as most sacred and has its name in the Indian Independence struggle. The Jallianwala Bagh forms importance place on the iternary of the visitors to the city. Numbers of government projects have been taken up to beautify the environs and to preserve the heritage of the area.

- ***Mosque of Khair-ud-Din:*** It was built in 1877 and is located in Hall bazaar. It is one of the beautiful pieces of Islamic architecture (see Fig. 5). It has served as Jama Masjid and reminds the socio-cultural aspect of the city. Mosque is well maintained, but it has been overshadowed by the surrounding high rise structures and commercial buildings, obscuring its glory.

- ***Mosque of Mohammed Jan:*** Built in 1872, the mosque is now in a state of complete neglect. This is also a good piece of Islamic architecture and has many architectural features (see Fig. 6). The mosque is not yet declared as the protected monument. In order to protect and save the beautiful structure, it will be

Fig. 10 : Bait-Al-Massih Church

Fig. 11 : Durgiana temple

desirable that the building is declared as protected monument under the state Act and construction around the building is properly regulated and rationalized.

- ***Gates and Walls:*** Massive wall (25 yards broad and 7 yards high) was constructed in 1825 by Maharaja Ranjit Singh. Around this high wall, a moat had also been constructed to protect the city of Amritsar from enemies, which over the period of time has been encroached upon by different activities. In today's context, the historic character of wall has vanished largely due to encroachments. Area under wall in the south is largely encroached by govt. offices like police stations whereas part of it has been kept as green area. In the north and all along the moat, area is encroached by different commercial activities.

There were initially fourteen gates in the city. Out of these, six gates have already been demolished which includes Beri Gate, Mahan Singh Gate, Sheranwala Gate, Bhagtanwala Gate, Hakima Gate and Gilwali Gate. The remaining gates need conservation. Fig. 7 shows Hall Gate.

- ***Town Hall:*** This was built as an administrative nucleus in 1863 by the British. It is located on the southern end of Hall Bazaar (see Fig. 8). It is constructed in red bricks with lime and *surkhi* as the binding material. It has semi- circular arcades and a beautiful *chhatri* at the front entrance. It has a flat roof made of timber planks and brick tiles. The MC office located in this complex which is going to be shifted in a short period and this building shall be used as a city museum. The building has developed cracks and growth of plants has also taken place resulting in creating dampness in the walls.

Fig. 12 : Khalsa College

(II) HERITAGE STRUCTURES OUTSIDE The WALLED CITY

- ***Saint Paul's Church:*** This church (Fig. 9) is located on Court Road adjacent to Head Post Office and opposite New Rialto Cinema. It has a seating capacity of 200 persons. The church is in a comparatively good condition but its surroundings are neglected and need improvement and orderly development.

- ***Bait-Al-Massih Church:*** In addition to St Paul Church, there exists another Church in the vicinity of walled city and is known by the name Bait- Al-Massih Church (see Fig. 10). The church was built in 1852 and is located outside Rambagh Gate. It has very nice proportions and is a fine piece of Victorian architecture. It is situated outside the Rambagh Gate. However, it suffers from high degree of traffic congestion.

- ***Durgiana Mandir:*** Built in 1924, Durgiana temple (Fig. 11) is an important religious center in Amritsar. It is in close vicinity of Amritsar Railway Station and about 1.5 Km from the Bus Stand. This has been built following the pattern of Golden Temple including locating structure within a huge water tank. The temple is visited by thousands of people, both locals and tourists. However, there is not enough parking spaces for the visitors and the approach to the temple is also not well defined as in the case of Darbar Sahib. The area around the temple, especially along Shivpuri, is encroached upon by the *jhuggi-jhoparis,* which is also affecting the aesthetics of the temple. A proper access and parking area is required for the temple having great religious significance. Improvement Trust, Amritsar has taken up the Durgiana Temple beautification scheme.

- ***Khalsa College:*** Khalsa College (Fig. 12) is a unique master piece of Sikh architecture. It was planned in 1892 by Sardar Ram Singh of Mayo School of Art. Its foundation stone was laid in 1904. The basis of planning and designing of this college has been taken from Harvard University of USA (H – shaped plan of main building). The architectural style is a hybrid of Mughal and Rajputana architecture. There are Mughal style Jharokhas, Jali work, Chattris and Rajputana style arches and huge pillars. The campus has got well distributed and spacious open spaces. The construction was made by renowned contractor S. Dharam Singh, in whose memory Dharam Singh Market near Golden Temple has been constructed by the Improvement Trust.

- ***Watch Towers:*** Two watch towers were constructed by S. Jassa Singh Ramgarhia i.e., Burj Baba Phula Singh and Baba Atal Rai Tower. These are

Fig. 13 : Burj Baba Phula Singh

Fig. 14 : Baba Atal Rai Tower

octagon shaped minarets with height of about 100 feet. These are built in lime and *surkhi* with *Nanak Shahi* bricks.

(i) Burj Baba Phula Singh: It was built in 1923 by Mahant Narain Singh (see Fig. 13). It is situated in front of Bus Terminus near the city center. It is circular in shape, four storied high with a *chattri* (dome) at the top. There are smaller *chattris* on all four sides. It is constructed of red bricks in lime and

Fig. 15 : Gobindgarh Fort

surkhi. The approach to the building is through the road leading to truck terminal, which is in a worse condition.

(ii) Baba Atal Rai Tower: It is the place where Guru Hargobind took his last breath and tower is named after Guru Hargobind's son. It is one of the tourist destination located in the vicinity of Golden Temple. It is octagonal in shape and one has the distinction of being one of the tallest buildings of Amritsar. It has great religious value (see Fig. 14).

(iii) Gobindgarh Fort: It was built in 1809 by Maharaja Ranjit Singh and is located on the western side of the Lohgarh Gate. The wall of the fort (see Fig. 15) had numerous bastions with guns fixed. It was used as a treasury of Maharaja Ranjit Singh. It is constructed of red bricks mixed with lime and *surkhi.* Earlier it was under the Indian army but now has been handed over to State Tourism Department for converting into heritage hotel.

- ***District Courts:*** District Courts are based in the building which was built in 1876. The building is enclosed in the triangle formed by Mall Road, Court Road and Ajnala Road. It is built in red bricks with lime and *surkhi* (Fig. 16). The building has an influence of Victorian Architecture having pointed arches and carved wooden doors and windows. It has a flat roof with brick tiles and timber planks. Some of the parts of the building have been demolished and new judicial complex has been constructed. The building has unsightly electric poles and wires in its vicinity. Some doors, windows and ventilators have been closed by placing the bricks. The entrance porch has been whitewashed which does not gel with the original red color of the building.

- ***Head Post Office:*** It was built in 1925. It is situated in front of New Rialto Cinema on Court Road. It is built of red bricks with lime and *surkhi.* It has got semicircular arches with huge pillars (see Fig. 17). The building is jinxed by the informal activities at the front. There are unsightly overhead wires and signboards.

Fig. 16 : District Court

- ***Ram Bagh:*** Ram Bagh (see Fig. 18), built by Maharaja Ranjit Singh in the sacred memory of Guru Ram Das Ji, was completed in 1831. Its design was influenced by Mughal concept. It has a square plan, which was later on modified by the British into an informal curvilinear plan. Its main focus is summer palace, which has been converted into Maharaja Ranjit Singh Museum. *Darshini Deori* is also an important unit from heritage point of view. Now some of the area has been encroached upon by various clubs, which are damaging the environment of the garden. The Summer Palace and Ram Bagh Gate have been taken up by ASI as Protected Monument as per the Ancient Monuments and Archaeological Sites and Remains Act, 1958. It is one of the largest open spaces available within the city and is frequented by large number of locals and tourists.

- ***Railway Station:*** The British constructed the Amritsar Railway station (see Fig. 19) in 1931. It was the first railway station in the whole of Punjab. It is built in red bricks with lime and surkhi. It has an influence of Victorian architecture with decorative *jali* work and arches. Recently, the Indian Railway announced that Amritsar Railway Station would be upgraded and mordenised as a World-Class station, having shopping centers, food stalls, restaurants, book shops, telephone and fax booths, medicine and variety stores and budget hotels as well as underground parking.

- ***Attari - Wagah Border:*** The Attari - Wagah border is a ceremonial border on the India–Pakistan Border where each evening a retreat ceremony called 'lowering of the flags' is held (see Fig. 20) . Soldiers from India and Pakistan perform a flag march. Soldiers perform some drills and then gates between India and Pakistan are closed. To experience the retreat ceremony about 15,000 to 20,000 people visit the border every week. Attari - Wagah Border is located at a distance of 28 kilometers from the city.

FAIRS AND FESTIVALS

Amritsar is known as city of 'Fairs and Festivals' (Fig. 21). Large number of festivals are celebrated in the city to mark important social and religious events such as *Baisakhi, Diwali, Hola Mohalla, Dushehra, Ram Navami, Janmashtami*, *Guru Nanak Jayanti*, *Gurupurabs, Basant Panchami, Amavasya and Sangrand*. In addition, a *Langoor Mela* at Durgiana Mandir and Maghi are celebrated with great gusto and fervor. Major attractions include Diwali celebrations at Golden Temple, Baisakhi at Jallianwala Bagh and Guru Nanak Jayanti and Prakash Utsav of Sri Guru Granth Sahib Ji. Almost 4-5 lakhs people visit Golden Temple on *Baisakhi, Diwali* and *Guru Nanak Jayanti*. Apart from these, there is always rush on *Sangrand* (the first day of Hindu month). A mela is celebrated in Ram Tirath too for one week, which witnesses gathering of one lakh people daily. In addition to Hindus and Sikhs, large number of Muslims and Christians also visit the city. St. Paul's Church built in 1853 and Jama Masjid (Mosque of Khair-ud-Din) built in 1877 are the most prominent locations frequented by them.

AMRITSAR CUISINE AS A PART OF HERITAGE AND CULTURE

Amritsar, a traditional vibrant city, is known for its warmth and hospitality. Amritsaris are born hosts, and are famous for having a palate for eating. This is perhaps because frequent ravages of war shaped the Amritsari mindset where the dawn of the next day was not sure.

The city is famous for its culinary delicacies like multi-layered *prathas*, *channa bhatura*, *tandoori kulchas*, *puris*, jam, marmalades, *sharbat, rabri* and *lassi.* Other delicacies include *satpuras*, *samosas*, fried fish, *seekh kabab*, *mutton tikka*, barbecued chicken and spicy pickles. The specialised Amritsari Kulcha (baked) is prepared in Amritsar city only, and is not available or prepared even at a distance of 15 kms from the city.

The celebrated *papad* and *vadian* from Amritsar have become the subject of many a rhymes and jingles.

Fig. 17 : Head Post Office

Fig. 18 : Ram Bagh

Amritsaris have a sweet tooth for *pinnis, balushahis* and *gur ka halwa*. The city has many places for traditional cuisines and modern foods. Most of the eating joints of the traditional cuisines are within the walled city.

STRATEGIES FOR PROMOTING DEVELOPMENT OF AMRITSAR

(i) THE WALLED CITY

The walled city has a total area of 350 hectares (see Fig. 22), which constitutes merely 2.5 percent of the area of the Amritsar city. It houses approximately 16% of the population of the city. However, the Walled City, Amritsar has a unique quality of growth and development. It has the distinction of housing the major cultural and religious landmarks. In addition, it is also the hub of trade and commerce and symbol of Amritsar City. Accordingly, Walled City needs to be considered as the first layer of the entire

Fig. 19 : Amritsar Railway station

Fig. 20 : Attari - Wagah border

planning area, being its heart and soul. Considering the historicity of the area due to the presence of Golden Temple, Jallianwala Bagh, Durgiana Mandir, Katras, Bungas, Havelis of historical times, narrow streets and specialised markets, walled city deserves to be preserved, conserved and up-graded in terms of infrastructure in order to make it a cultural hub. Considering the inherent strength and value of walled city, as the symbol of physical, social, economic and historical growth, it is desirable that walled city should be designated as 'Conservation and Tourism Area' to be developed to preserve the existing rich heritage (see Fig. 23).

City of Amritsar needs to take drastic administrative steps and launch innovative planning and development initiatives, to make walled city a Heritage City in true and real sense of the term. Amritsar needs to be divided into two distinct layers for planning and development, involving area inside and outside the walled city . Walled city needs to be planned and developed as pedestrian city with entry of all commercial and personal vehicles banned into the inner layer. Mobility within the walled city should be in the form of electric trolleys/ limited number of rickshaws to cater for the senior citizens, physically challenged, sick, children ,women etc and for transporting goods. All metalled roads within the walled city should be replaced by pavements to make it truly pedestrian and restore the aura of19th century in the city. No additional parking should be created and multi-storeyed parking already created should be closed immediately to minimise damage to Golden Temple due to carbon emissions generated by vehicles parked in the walled city. To meet parking needs of the inner city, parking outside the twelve gates should be created with vehicular traffic restricted on the circular road. All overhead wires within the walled city should be made underground. Signages, on the international pattern, designed to replace the hoardings and advertisement to minimise visual pollution. Walled city needs to be given a facelift by reshaping the building facades by involving eminent urban designers. Walled city must be made tourism hub by encouraging people to offer bed and breakfast facilities to help tourists stay longer; enjoy Amritsary food, understand and appreciate Amritsar living and warmth of Punjabi hospitality. This calls for preparing Master Plan exclusively for the walled city, to rationalise its growth and to save the heart and soul of the historic and heritage city of Amritsar Accordingly, following strategies are proposed for the walled city of Amritsar:

- To preserve, enhance and promote the basic character of the Walled City
- To promote quality of life by improving, upgrading and providing state of art infrastructure and services.
- To undertake selective de-congestion of the walled city by shifting of wholesale and bulk material markets including Fish/Iron Market, Cheel Mandi, Iron Market (Bagh Akalian), Goldsmith Market, Ghee Mandi, Namak Mandi, wholesale medicine market, building materials, etc. to identified planned areas outside the Walled City near Bhagtanwala Gate/along the major road and rail networks.
- To promote de-congestion by eliminating sub-division of land and change of land use from residential to commercial and others.
- To promote revitalization of walled city area by way of conservative surgery.
- To frame detailed 'Urban Design Guidelines' for promoting and enhancing the quality of urban spaces.

- Shifting of the Goldsmiths market/ activities operating near Golden Temple in order to minimize the damage caused by them to the world heritage monument 'Golden Temple'
- To promote conservation and preservation of identified heritage buildings
- To promote Heritage Walk by developing processional route of Maharaja Ranjit Singh from Ram Bagh Garden to Walled City and its surroundings areas.
- Provision/ Up-gradation of higher level of urban and tourist infrastructure
- To promote, preserve, enhance and augment the bazaar culture in the walled city in order to make it a role model of urban heritage.
- To minimize vehicular pollution by promoting electric based and other non-polluting mass transportation system.
- Pedestrianization of the walled city in order to decongest and eliminate the traffic problems due to lack of adequate road width/parking.
- To promote pedestrianization by building special walkways on the stretch from Chowk Phowara to Golden Temple.
- Implementing time regulation for undertaking loading and unloading activity for existing wholesale markets within walled city area.
- To identify, create and develop available open spaces through proper landscaping within walled city.

Considering the critical role, historical importance and typical character of the walled city, it is proposed that it should be developed as a distinct entity. Accordingly, a specific, exclusive and detailed plan for the development of walled city needs to be prepared. The plan should be based on the prime consideration, having focus on Urban Design and Heritage Conservation and Preservation. Such a plan would be critical to preserve, promote and enhance the religious, cultural and commercial ambiance of the walled city besides improving quality of life and productivity of Amritsar Metropolis. The preparation of urban design/heritage development plan for the walled city needs to be taken up on priority on the pattern followed for the preparation of Development Plan of Char Minar area of Hyderabad. Already large numbers of development projects have been/ being taken up for the development of walled city by various parastatal agencies without any integration. It will be critical to integrate all these projects within a well-defined framework. Accordingly, preparation of such a Development Plan for walled city assumes importance considering the huge amount of investment and number of development projects being taken up in the walled city in isolation.

Fig. 21 : Amritsar, the city of 'fairs and festivals'

(ii) Development Controls/Heritage Regulations

The role of development controls, zoning regulations, building bye-laws is crucial in preservation and conservation of built heritage. Areas identified as built heritage would require special provisions for their development because of their specialized character. It may revolve round specifying provisions relating to regulation of traffic, eliminating misuse of buildings for industrial or storage purposes, specifying uses which would be permitted in the buildings or areas which would not damage their basic character. The Development Controls, etc. should be prepared with sensitivity after careful and detailed study of the area and must be commensurate to their requirements etc. However, in case of hardships to the owners/tenants of the buildings, appropriate incentives must be made available to them so as to ensure the conservation of the buildings. Concept like Transfer of Development Rights (TDR) can be made applicable in case of such buildings which would require preservation etc. Large number of states in the country has already prepared Heritage Regulations which specifically deals with the planning, development and management of Heritage areas. These Regulations have added a new dimension to the development of such areas without compromising with the quality of buildings and spaces. Accordingly framing of **Heritage Regulations,** distinct from prevailing building by-laws, on the pattern of Hyderabad and Mumbai for the heritage buildings, areas and precincts would be critical in order to ensure that the basic fabric of these buildings and areas is not changed and essential architectural elements are not tempered with. The existing by-laws applicable to Amritsar are

Fig. 22 : The walled city of Amritsar

not capable to respond to the challenges of heritage related issues and have caused more damage than good. They need to be amended on priority.

(iii) Incentives

Existing laws do not provide any incentive to owners of buildings of architectural and historical importance to preserve and conserve them. It treats all landowners on the same footing. This acts as a disincentive to such owners in the context of ever rising land values and availability of better opportunities of commercial exploitation. Misuse of most of such buildings is due to such disincentives. It would be accordingly desirable that owners of such buildings are given enough tax concessions by both local and state authorities in the shape of rebates etc. for ensuring the proper maintenance and upkeep of built heritage. It would be worthwhile to look at the example of U.K. where substantial tax concessions have helped in preserving the buildings having exceptional architectural, historical value. People are fast approaching the local authorities for granting the status of listed buildings so as to avail substantial tax concessions. This not only helps in identifying enormous wealth of built heritage but also its preservation and conservation. It will be worthwhile considering the institutions of heritage awards which should be given annually to owners of privately owned Heritage buildings who set examples of preservation and conservation. n this era of opening up of Indian economy to multi-nationals and economic liberalization it would be desirable to involve the corporate sector in the process of preservation and conservation. Tax incentives would help in flow of substantial funds in this field and would go a long way in achieving the objective. Punjab Government has already put in place a policy for promoting private participation in the maintenance, conservation and preservation of protected monuments for generating resources for restoring the original glory of these monuments as per archeological principles. The policy needs to be implemented with all commitment and sincerity. However, the policy needs to be extended to cover all heritage buildings in order to widen its scope to cover the entire heritage of the city.

(iv) Heritage Fund

It would be desirable that heritage fund at the national, state, and local level is created, so as to generate enough resources for the conservation and preservation of built heritage. Donations to the fund must be fully exempted from the incidence of income tax. Further all foreign tourists visiting India must be levied a tax on the pattern of education cess which should form part of the heritage fund. Similarly, part of income generated from the fee collected from visitors of historical buildings should also go towards augmenting the heritage fund. Prominent artists should be involved in raising funds for this purpose by organizing charity shows. The heritage fund should be used in promoting research and development in the area of conservation and preservation besides providing financial support in maintenance and upkeep of buildings listed as built heritage. For generating appropriate level of resources for Heritage, State Government should consider the option of starting a Heritage Lottery, levy of Special Heritage Cess, earmarking 10% of the annual development budget of Amritsar Development Authority and Municipal Corporation for Heritage purposes. In addition, Industrial houses, Corporate Sector, CII, PHDB and International Agencies could be actively involved in making available resources for Heritage Conservation and Preservation.

(v) Heritage Tourism

Heritage and Tourism has been found to have close and positive relationship which can be effectively leveraged in a mutually supportive manner. All over the world, the most sought after tourist destinations are the areas which have richness of manmade or natural heritage. It has also been established that Tourism has the highest potential for generating revenue and employment. Accordingly, it becomes important that Heritage should be used as a major revenue earner and generator of employment for its work force. However, this potential would largely depend upon how effectively we are able to preserve our heritage, ensure that development taking place in and around such areas is in total harmony with the existing Art and Architecture of the area and the existing buildings, with sufficient literature made available to guide the tourists. It would be critical that all those who are engaged in tourism industry are made aware of the need for preserving the heritage

Fig. 23 : Conservation of the existing rich heritage of Amritsar

which would go a long way in promoting conservation. Amritsar, a city where the myth and history have woven a multi-coloured mosaic of secular heritage and traditions, the home of Harimandir Sahib (acknowledged as the fifth most desired pilgrimage destination in the world), Jallianwala Bagh, Ram Bagh and Gateway to India, housing numerous buildings related to various religions, offers enormous opportunities for promoting heritage tourism. With improved relations with Pakistan and softening of the international borders, upgrading the local airport to international level and increased trade and commerce with Pakistan, Amritsar is going to witness enormous inflow of tourists and traders across the border. This potential needs to be fully exploited by creating appropriate level of tourism and trade related infrastructures.

Conclusion

Indian historic cities and settlements are complex and highly developed cultural resource entities and Amritsar is no exception. They show a wide diversity in their morphological character, being products of different geographical contexts, specific historic times, characteristics and functions. They have to be treated with sensitivity on the issue of development. The historic cities have to be viewed both as source and repository of architectural and technical knowledge. This knowledge system has to be deciphered by dissecting the city, identifying its 'contents' and understanding its complex relationship. Only through such a 'rediscovery' will we be able to define and describe the Historic City and its heritage.

In the given context, it becomes critical that history, geography, morphology and cultural components of Amritsar heritage are carefully studied and analyzed before solutions for its preservation and conservation are put in place. Numbers of development schemes are already in the process of implementation or in the pipeline, all these need to be viewed critically in the context of their impact on valuable heritage. Considering the present political, economic and developmental scenario, Amritsar is going to witness a new resurgent era of enormous growth and development with lot of investment and people coming into the city. Real estate values are going to rise sharply resulting in rapid conversion of land uses and enormous development pressure on the city and its existing inadequate infrastructure. The pressure would be more pronounced within the walled city which houses most of the valuable heritage. How these developmental pressures are rationalized and canalized for promoting the orderly growth and development of the city and its heritage, would hold the key to the future of the city and its position in the state and nation as the home of all virtues, heartbeat of *majha* and repository of spiritual and national heritage.

REFERENCES

- Govt. of Punjab, Master Plan of Amritsar, 2011-31.
- DOE, UK, Historic Building Conservation
- DOE, UK, Conserving the Past for the Future
- Gupta, J.K., Conservation and Preservation of Heritage
- Gupta, J.K., Legal Issues in Conservation of Manmade Heritage
- UK, Ancient Monuments and Archeological Areas Act
- Gupta J.K., Discovering Amritsar Heritage- Agenda for Action

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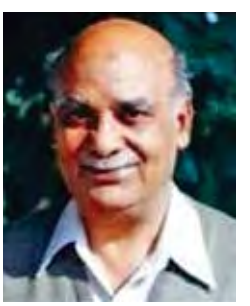


Prof. Jit Kumar Gupta (F8691) is an architect with more than 53 years of professional experience in architectural education, urban planning, policy planning, urban legislation, capacity building in sustainability, green buildings, affordable housing, smart cities, urban laws, urban missions, rural planning, disasters, urban development, and urban governance.
Email: jit.kumar1944@gmail.com

Working towards a Purpose

Ar. Amrutha Kishor

As a nine-year-old, I knew nothing of careers except that I wanted to be my own boss. Destiny brought me to architecture school at the National Institute of Technology in Calicut, and before I knew it, I was working as an intern and architect at five different organisations spread across three countries. All this while, I would keep wondering, if I were to start a firm, what it would be all about. Architecture profoundly interested me, but I wished to find a deeper meaning to my work, one that would be grounded in issues faced in the real world. It was during my masters at the University of Nottingham in the UK that I gained some clarity and found the direction I was to tread in professionally.

It was eye-opening to realise that, as seen in Figure 1, the building construction and operations industry was the biggest contributor to the global carbon footprint. I realised that this is where architects have a significant role to play. My firm, Elemental, was built on this call for action. I learned that climate-responsive design is indeed the need of the hour. Since the initiation of Elemental in 2020, we have had the good fortune of having like-minded clients who support this thought and believe in the cause of the environment. Figures 2 and 3 show images of our studio's pilot project, The EcoHouse in Kottayam, which combines several passive design strategies to create comfortable spaces for the occupants. This project showcases traditional building elements used in the region, which is our attempt to preserve the local architectural identity, another one of our main beliefs at Elemental.

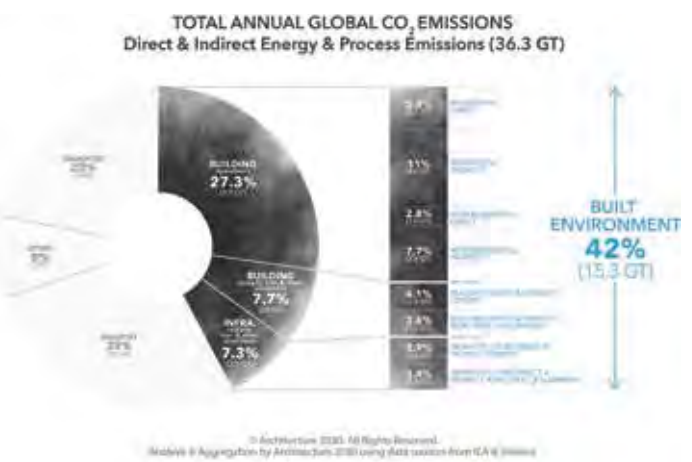


Figure 1: Global Carbon Emissions by Sector
Source: Architecture 2030, https://www.architecture2030.org/why-the-built-environment/

Equal Opportunities

In our studio, women constitute over 90% of our workforce, demonstrating a commitment to gender

Figure 2: The EcoHouse in Kottayam, Kerala
Picture credit: Justin Sebastian

Figure 3: The EcoHouse in Kottayam, Kerala
Picture credit: Justin Sebastian

diversity. Our team has grown to 12 architects as of December 2023 (see figure 4). Our studio environment fosters a rich tapestry of perspectives, driving creativity and innovation across all facets of our organization. I am often questioned about the effectiveness of our women-dominated team on construction sites, where traditionally a man has been perceived to be the one taking charge. In our attempt to break this stereotype, we are also working on a project titled 'Women at Work' that is about the lack of women taking up job roles on construction sites.

Flexibility is Key

During one of my early internships, I was once denied leave and ridiculed for prioritising an important personal event for office work. I strongly believe in striking a healthy work-life balance and creating an office setup that allows flexibility for employees. Elemental is among the pioneering architecture firms in the country that operates on a fully remote basis, prioritising a healthy work-life balance for our team.

This mechanism places importance on personal time and gives the team the freedom to be available for personal commitments whenever required. One of our team members has two children under 3 years of age and it is only because of the work system that she is able to pursue her career at this particular stage in her life. Due to the flexibility offered to our team, they are able to spend time regularly pursuing personal interests instead of wasting time on the daily office commute.

The reason our work-from-home system works smoothly is because we embrace an agile working methodology instead of a traditional hierarchical management system (see figure 5), with a focus on swift adaptation and collaboration in response to evolving circumstances and demands.

With our daily morning meetings with the team coupled with the cloud server and management

Figure 4: Team Elemental in 2023
Source: Author

Figure 5: Traditional system vs. agile system
Source: The Agile Team: Application and Importance by Rohit Vobbilisetty, https://rohitvobbilisetty.wordpress.com/2014/09/22/the-agile-team-application-and-importance/

software such as AttendanceBot and Slack, we are able to work effectively and within deadlines. As our projects are scattered in different locations, quite far away from each other, we have team members from nearby locations conduct site visits.

Productivity Hub

Our office system focuses more on the importance of efficient work processes and output than simply clocking in a set amount of time. As an employee in 5 different offices over a 7-year period before founding Elemental, I observed that the productive work time of most teammates was effectively less than 55%. This came along with the glorification of team members who spent more than 12 hours at work when they effectively worked for maybe less than 8 hours! This made me wonder about the importance and value of personal time and the time and money spent per employee on commuting.

Studies have shown that, more recently, with the rise of the digital age, the human attention span is shrinking. So in the coming years, I see this having a more concerning effect on productivity. The solution to this was to cut the problem off at its root. On a daily basis, we have a system where tasks are distributed to team members. The team has the freedom and flexibility to pick any task of their choice and the only objective is to finish the task. If you are quick enough to finish the task in 2 hours, that is good enough,or if you finish the task in 6 hours, that works too. All that matters is that the tasks are done by the morning meeting the next day. Ticking off the boxes also gives the teammates a sense of accomplishment, and in case you're stuck, you're only a call away from the rest of the team to help arrive at a solution. After all, as author and business professional Ken Blanchard said, "none of us is as smart as all of us.".

Catalysts for Innovation

The agile system also allows the team members to work on different types of tasks over the course of the week to keep their creative juices flowing. Incredible results can be achieved by using technology and clear communication skills. Research has found that 65 percent of the general population are visual learners, which means that they need to see information in order to retain it. Figure 6 shows how we engage in online meetings with the screen-sharing feature to convey ideas. As we are able to see each other in equal-sized boxes, the message conveyed is that the inputs and ideas of each of the team members are equally valuable, with the bigger screen focusing on the problem to be solved. This is different from the situation in a regular office, where the hierarchy might be given more prominence in a similar situation.

Figure 6: Team Elemental in Online Meetings
Source: Author

Work hard. Play harder.

Although we do not meet each other in person most of the time, through office trips and team-building sessions, we strengthen bonds and open channels of communication. Figure 7 shows the image of the team at a get-together during the *Onam* festival in August 2023. The idea is that we meet for the good times and also easily have enough space during the tough times, which makes conflict management more effective if there is a need for it.

A nourishing environment

I am a strong believer in the philosophy of Henry Ford, which states that "if everyone is moving forward together, then success takes care of itself." This extends to creating a good mindset at the workplace, where the team finds a space to be open and think freely.

During my masters, one of my mentors shared his approach with me, which will stay with me for a lifetime. The Chilean professor followed two steps in his discussion with any student. He first started with two things the student did right. And after this, he gave two suggestions for improvement. And

Figure 7: Team Elemental during Onam festival celebrations in 2023
Source: Author

he followed this no matter how excellent or poor the student's work was. Because, if you see the big picture, the intention of the professor was just to help the student be better than they were the previous day.

I believe that this is most important in the creative profession. To come up with more innovative solutions, we need to be given the freedom to make mistakes as we think and evolve from them. There is a famous quote that says curiosity is the wick in the candle of learning. Offices should be a space to be curious and a space to grow in.

To read more about how the team perceives our system, take a look at the blog published in March 2022 on our website, www.elemental-architects.com.

A long way to go

Although Team Elemental is happy to have attained a unique work style as mentioned above, we have a long way to go to reach ideal financial conditions for the young workforce. Unfortunately, this seems to be a common situation across the majority of architecture firms in the country. It is said that the low return on investment is one of the main reasons for the number of architecture students dropping out of the country.

Just as in companies of other industries in certain parts of the world, we must also grow to be able to give 30 paid leaves (without sick leaves) and a 6-month maternity as well as paternity leave. Employee privileges such as annual bonuses and health insurance for the team and their families should also become a reality.

Figure 8: The pillars of sustainability
Source: Nine Ways Sustainability Drives Profit by Chris Hummel, Schneider Electric Blog, https://blog.se.com/buildings/building-management/2014/08/26/nine-ways-sustainability-drives-profit/

As of today, most of my ex-teammates who have bid farewell to our team have done so to either pursue higher education or move abroad to find jobs. Our next target is to raise this bar so that there is more retention of the workforce. As businessman and author Doug Conant says, "To win the marketplace, we must first win the workplace."

Figure 8 shows the three pillars of sustainability, which one could use as an eternal life philosophy. It is only unavoidable that we are conscious of the planet, the impact our creations have on the environment, the impact we have on the people we work with and profit from, and the stability we run our organisations with. Once all three of these fall into place, we can ensure a sustainable future for ourselves and the generations to come.

Ar. Amrutha Kishor (A23899) is the founder of the award-winning firm Elemental, which specialises in climate-responsive design and critical regionalism. She is the first Indian to be nominated for the RIBA President's Award for her study on how good architecture aids energy efficiency in buildings in 2019.
Email: amrutha@elemental-architects.com

रेषाविश्व
Reshavishwa

Author: Ar. Vishwakumar Badawe
Reviewer: Ar. Mrinalini Sane

Reshavishwa: book cover (Source: Authors)

Genre	:	Narrative
Language	:	Marathi
No of pages	:	143
Publisher	:	Purandare Prakashan
Year of publication	:	2023

Ar. Vishwakumar Badawe, based in Pune, recently wrote a book in Marathi aptly called *Reshavishwa* on completing 55 years of practice. The title translates as the 'world of lines', an interesting play on the words. *Vishwa* meaning 'world', which is part of his name and *resha* are the lines through which an architect expresses ideas. It was published in September 2023 by Purandare Prakashan of Pune and priced at Rs. 1200. The hardbound book has a cover in the typical blueprint colour of ammonia on the background with a part of a blueprint drawing. The back cover very briefly gives the concept of the book to the reader. A black-and-white photo of the author in his younger days and a colour photo of the author of today, helps the reader realize the time span covered.

The book has 122 pages of written matter and 12 photo plates, located at the end of the book. The 16 chapters are interspersed with black and white photographs. The first chapter sets the tone of the background of the author, his childhood, school and college days. We are also introduced to his family and the cultural values. From the village of Newasa to Pune to Mumbai, we see the transition of the scale of habitat and diverse cultural influences. This leads to the second chapter where the author spends about 3 years in Europe as a young architect studying and working. He is enthused by the freedom he experiences in Denmark while the unsavoury flavours of discrimination are present in England. The third chapter covers his thrilling overland return journey to India with a variety of adventures including a difficult border crossing through Kurdish areas and Iran.

From the fourth chapter onwards till the fourteenth chapter, the commencement of his architectural journey, with a job with the great Ar. B.V. Doshi to setting up his own practice, is covered. Each chapter focusses on a particular project or a typology. The variety of building types can be seen at a glance in the content's pages. From cinema theatres to industries, from banks to hospitals, from hotels to temples – one gets an idea of the vastness of scope of the author's work. The fifteenth chapter is aptly titled 'Variety of Work'. This summarises not only the projects completed, but also participation in competitions. Some translated into jobs, some were stopped in between while some did not materialize. The final chapter comprises of acknowledgements – his staff, colleagues, consultants etc., as also his family. He mentions Vineeta, his daughter, as his student and also as an independent architect. Time to time in the various places, he has also mentioned the help provided by his students and friends.

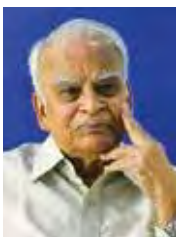
The style being conversational, this book is an easy read, written in first person by the author. We, the readers, travel with him across the years. We get a glimpse of the early post-Independence days, when architecture colleges were a rarity. The allure of life in Europe is contrasted with the desire to return to India. With his motherland calling him, the nation benefitted with an architect of sensitivity and integrity. His balanced approach towards work ethics and social obligations show a path of unwavering commitment to the profession of architecture, his clients and society at large.

Ar. Badawe has shared some interesting anecdotes of how he obtained some of his commissions. He does not shy away from some disagreeable aspects which he experienced. The breadth of his practice is an inspiration for students, young practising architects as well as established ones. This book hardly contains any architectural jargon, making it simple yet interesting even for a layperson. Perhaps, it may serve as an introduction to the field of architecture as a profession for parents as well as school children, a probable option for career selection. There are many people who do not know the scope of work of an architect. This book can help to dispel some doubts as well as clarify the roles and responsibilities of an architect. He shares the challenges he faced and discusses how they were resolved without being tedious. His work has been recognised at local, regional and national level. Many of his projects have been inaugurated by persons of national repute. Bharat Ratna Atal Bihari Vajpayee and Lata Mangeshkar inaugurated the Deenanath Mangeshkar Hospital. Mrs. Indira Gandhi, the then-Prime Minister of India felicitated Ar. Badawe at the inauguration of Tilak Smarak Mandir. He has been widely covered by the press and also felicitated by AESA with Lifetime Achievement Award in 2008.

Covering more than half a century of life's work in a book of less than 150 pages is difficult, but, Ar. Badawe has managed it well. There are however, some aspects that may be looked into in the next edition. An index page of projects with dates and names of consultants would be helpful. In most of the chapters, consultants' names have been mentioned, but in some places, this has been missed. Considering the geographical variety of projects, a map would be useful to locate them. Since most are in Maharashtra and Goa, details of the locations would help in placing the context. The fifteenth chapter talks of participation in competitions. However, it is not very clear as to which were actually commissioned. Since this book has been written to cover his professional journey, we miss out on his personal aspects. Perhaps

a little more insight into the family members' role in shaping him as an architect and helping his career will contribute to a better appreciation of the author. The book does not offer any inputs regarding the changing nature of architectural practice. That missing aspect, when covered in the subsequent editions, will enhance the pleasure and usefulness of the book.

This book which is in Marathi, is also in the process of being translated into English. I believe that the English version will have a wider reach and hence, will offer a great read to all – architects and laypersons. I look forward to it in the near future.



Author
Ar. Vishwakumar Badawe (F1347) is one of the well recognised architects in the country, having completed 55 years of practice with projects all over Maharashtra. He had been professionally engaged with eminent firms in London and Denmark before returning to India to work with Shri B.V. Doshi in Ahmedabad. He has been associated as Chairman and Managing Director of Vinvish Associates Pvt. Ltd and Badawe Engineers Pvt. Ltd. He has also been associated as Founder and Patron Member of Architects, Engineers, & Surveyors' Association, Pune. Some of his projects include Dr. Hedgewar Hospital at Aurangabad, Deenanath Mangeshkar Hospital at Pune, Administrative Building Complex, various departments at University of Pune and various residential bungalows and ownership apartments.
Email: vva@vvarchitect.com

Reviewer
Ar. Mrinalini Sane (A10915) is a practicing architect and interior designer with more than 30 years of experience. She has been involved with architectural education as a visiting faculty member since 1993. Actively involved with the profession at IIA Pune Centre and Maharashtra Chapter, she has also been associated with the *Pune Construction Engineering Research Foundation* as an Executive Committee Member for more than 15 years. She has contributed to the profession in a unique way – as an ISO Auditor, Consultant and Trainer. She has represented India through *Rotary Group Study Exchange Programme*. She has also co-authored a book on Civil Engineering.
Email: mmsane@gmail.com

REPORT

Design Symphony Unveils Architectural Excellence Hosted by the IIA Punjab Chapter in Amritsar, Punjab

by Punjab Correspondence IIA member, Ar. Akanksha Sharma

IIA National Council Visit to Amritsar, Punjab

The holy city of Amritsar recently played host to a momentous gathering of architectural luminaries during the Office Bearers Meeting and 4th National Council meeting, graciously organised by the IIA Punjab Chapter. The event welcomed the esteemed presence of IIA President Ar. Vilas Avachat, along with seasoned office bearers, council members, and chapter chairmen from diverse states and union territories. All participants delved into consequential topics, seeking to elevate the influence and functionality of the esteemed institution. Within the hallowed halls of the council meeting, fervent discussions unfolded, weaving a tapestry of insight into the intricate facets of the IIA.

Venturing beyond the confines of the meeting rooms, participating architects embarked on an immersive journey into Punjab's rich tapestry of gastronomic delights, patriotic felling, and spiritual sanctuaries. Noteworthy among these experiences were the stirring Beating Retreat at Wagah Border, evoking a profound sense of patriotism, and an early morning sojourn to the Golden Temple, imparting a spiritual resonance. These encounters collectively heightened the holistic experience of the council members, underscoring the cultural and emotional richness that the region has to offer.

IIA Commune

A pivotal segment of the event was the IIA Commune, artfully moderated by Ar P. S. Ahluwalia, Chairman of the IIA Punjab Chapter. This session served as a forum to fortify the symbiotic connection between architects and IIA. Council members, elucidating the intricate workings of the institution and addressing queries from inquisitive architects. IIA President Ar. Vilas Vasant Avachat emphasised the involvement of young architects, expressing satisfaction with the last six months' achievements of the IIA Punjab Chapter. Vice President Ar. Jitendra Mehta detailed the platform of the IIA Commune, highlighting the various agendas and programmes, while Jr. Vice President Ar. Tushar Sogani focused on the coordination of chapters, centres, and international bodies, emphasising participation in national events like ARCASIA.

Presentations and performances

The IIA Punjab Chapter, under the thoughtful guidance of Chairman Ar. Ahluwalia, meticulously arranged an evening event aimed at fostering connections between local and national architects during the National Council meeting. The crescendo of the event, the Design Symphony at Hotel Raddison BLU Amritsar, showcased the confluence of architectural brilliance and cultural celebration. Notable speakers such as Ar Reza Kabul from Mumbai delivered a keynote address, explaining the intricacies of high-rise building architecture. Ar Rimmpesh added intellectual depth to the discourse by exploring the intersection between spirituality and architecture. The festivities commenced with a welcoming address by Ar Rajan Tangari, Joint Honorary Secretary of IIA Punjab, resonating with a harmonious blend of warmth and intellectual anticipation. Vice Chairman

Diving into the dynamic discussions and shared insights: Highlights from the 4th National Council Meeting in Amritsar, Punjab

Delegates illuminating the path forward through the ceremonial lamp lighting.

Empowering dialogue: The office bearer takes the stage, addressing architects' queries during the engaging sessions at IIA Commune.

Symbolic honour: IIA President Ar. Vilas Vasant Avachat acknowledged with a Kirpan, a sword representing power and justice, in a moment of recognition.

A moment of appreciation: The organising team honouring Joint Honorary Secretary IIA Ar. Akshaya Kumar Beuria

Architect Reza Kabul sets the tone with a compelling keynote address, leaving an indelible mark on the audience.

of IIA Punjab, Ar Dinesh Bhagat, presented a meticulous activity report, providing a vivid picture of IIA Punjab's achievements and initiatives. The event concluded on a note of gratitude, with Ar Sanjay Sharma expressing thanks to all participants and contributors. Various artists took the stage, showcasing the vivacity of Punjab's heritage through captivating performances of Bhangra (folk dance) and Ghatka (Sikh's Marshal Art), transcending the event beyond intellectual discourse to a celebration of cultural diversity.

Chairman IIA Amritsar, Ar Nitin Batra, played a pivotal role in extending hospitality and providing

At the iconic Wagah Border: Capturing a moment of significance against the backdrop of shared history and patriotism

Soulful serenity at the Golden Temple: A visit marked by reverence, reflection, and the gleaming beauty of a sacred sanctuary

Breathtaking Bhangra: A vibrant cultural performance mesmerising guests from different states

Impressive Gatka display: Revealing the skill and grace of Sikh martial art

Office bearers honoured by the Patiala centre, draped in Phulkari, a symbol of tradition and respect

a rich heritage experience to the council members. His efforts ensured a memorable and immersive stay for participants in Amritsar. During their visit to the Golden Temple and Wagah Border, Ar Karamjit Singh and Ar Rawal Singh Aulakh provided insightful explanations about the historical significance and spiritual depth of these revered places. Their guidance enriched the experience, blending history and spirituality.

Architects' Response

As the final notes of the Design Symphony lingered, a chorus of satisfied architects resonated with the visionary initiative of IIA Punjab. The unanimous sentiment underscored the event's role as an invaluable platform, fostering collaboration and knowledge-sharing. The resounding success of the evening affirmed the conviction that such gatherings are indispensable for the collective growth and awareness of the myriad activities undertaken by the IIA.

Conclusion

The 4th National Council Meeting and Design Symphony in Amritsar stand as a testament to the IIA's unwavering commitment to architectural excellence. Beyond the exchange of ideas, this event serves as a beacon, illuminating the path towards a unified and culturally enriched architectural community. In its totality, the gathering encapsulated a fusion of intellectual discourse, cultural celebration, and a holistic experience—an eloquent ode to the enduring spirit of architectural creativity.

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KUALA LUMPUR | 15-19 November 2024

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Equity and Ecology

EXTENDED DEADLINES

NEW EXTENDED KEY DATES

- 01 July 2023: Open call for papers submission;
- **31 December 2023: Deadline for abstracts submission;**
- 31 January 2024: Notification of abstracts acceptance;
- **30 April 2024: Deadline for Full Paper submission with abstract;**
- 31 May 2024: Notification of Acceptance / Authors receive feedbacks;
- 30 June 2024: Deadline for authors to submit revised papers if asked to do so by peer reviewers;
- **31 August 2024: Final paper submission by authors;**
- 15 – 19 November 2024: Presentation of Paper at the UIA 2024 International Forum Kuala Lumpur

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NEWSLETTER DECEMBER

Aapda Raahat Kosh 2023
Architects of Himachal Pradesh Contribute

A delegation of architects under the flagship of Indian Institute of Architects, Himachal Pradesh Chapter, met the Hon'ble Chief Minister of Himachal Pradesh, Shri Thakur Sukhvinder Singh Sukhu on 31 January 2023. The architects of Himachal Pradesh prepared a report on the *Flood and Landslide Disaster 2023* which explains in detail the causes, effects and recommendations for future development. This report was handed over to Hon'ble Chief Minister By Ar Nand Lal Chandel, Chairman IIA Himachal Pradesh Chapter, along with a cheque of Rs 5,11,111. This was in the presence of IIA Trustee, Ar. Jit Kumar Gupta. Among others Ar. Rajiv Sharma, Chief Architect HPPWD, Govt of Himachal Pradesh and Dr. Satish Kumar Katwal, Head, School of Architecture at Kangra at Nagrota Bagwan and Ar. Sushil Sharma were also present on the occasion.

The delegation also discussed various issues related to the architectural profession and fraternity with the Hon'ble Chief Minister, across all sections. Assurance was given by him to address all the problems discussed and that the participation and involvement of architects in all committees at both, the state and district levels will be ensured. This would also include map approval authority with punitive provisions. The empanelment of individual architects will also be made in the Real Estate Regulatory Authority (RERA). He also assured all possible help to the architects in the state of Himachal Pradesh.

IIA CHHATTISGARH CHAPTER

IIA Chhattisgarh Chapter reached a noteworthy milestone in its endeavour to extend its influence and scope throughout the state when the second Council Meeting in September 2023 in Bhubaneshwar approved the Sub-Centre body formation proposal. This occasion signified a critical juncture for the regional architectural community, as it facilitated the construction of the Rajnandgaon Sub-Centre. As a result of the Council Meeting's approval, the General Body Meeting (GBM) that took place on the 8th provided an opportunity for additional discussions and strategic preparations. The elaborate installation and oath-taking ceremony that followed served as a symbolic indication of the Rajnandgaon Sub-Centre's newly established authority. This occurrence not only established the structure in its formal form, but also provided the groundwork for a thriving centre of architectural endeavours in the area. The festivities served as a demonstration of the IIA Chhattisgarh chapter's dedication and zeal in cultivating a robust architectural community that extended well beyond its principal location. The installation and oath-taking ceremony served a purpose beyond mere protocol; they symbolized the combined aspiration and resolve to enhance the architectural milieu in Rajnandgaon.

Architects united: A moment captured as the newly-formed Rajnandgaon Sub-centre of IIA Chhattisgarh celebrates its inception

One of the most notable aspects of the occasion was the attendance of esteemed keynote lecturers, Ar. R.K. Patel and Ar. Mustafa Ahmed. Their distinguished attendance infused the ceremony with an air of prestige, and their perceptive lectures made a lasting impression on the architects in attendance. Ar. Mustafa Ahmed and Ar. R.K. Patel presented their outstanding work, recounting insights and knowledge gained during their distinguished professional trajectories. Not only did their presentations exhibit remarkable architectural prowess, but they also provided the architects in attendance with a wealth of inspiration. The selection of speakers exemplified the dedication of the IIA Chhattisgarh chapter to showcasing visionaries and leaders in the field, facilitating the interchange of knowledge, and cultivating an architectural community culture that promotes ongoing education. The chapter actively promotes a culture of excellence in architecture and aids in the professional development of its members through the organisation of such events.

The ensuing celebratory event and the successful establishment of the Rajnandgaon Sub-Centre demonstrated the Chhattisgarh Chapter of the IIA's commitment to promoting architectural activities and raising awareness throughout the state. This strategic expansion serves as an indication of the Chapter's increasing influence and a proactive measure to decentralise resources and opportunities for architects in various regions. In summary, the installation and oath-taking ceremony, which coincided with the sanction of the Sub-Centre body formation, signify a momentous milestone in the IIA Chhattisgarh chapter's history. The architect attendees' fervour and the distinguished speakers' attendance served to highlight the Rajnandgaon Sub-Centre's vitality and potential. The Chapter is well positioned to significantly influence the architectural discourse of Chhattisgarh, promote cooperation, and serve as a source of inspiration for aspiring architects in the state as it further expands its influence.

IIA HIMACHAL PRADESH CHAPTER

IIA Himachal Pradesh Chapter celebrated Bal Divas at Nagchalla Mandi, Himachal Pradesh.

IIA Himachal Pradesh Chapter celebrated Bal Divas at Nagchalla Mandi Himachal Pradesh Himachal Pradesh on 11 November 2023 by visiting cooperative schools of specially-abled students. Ar. Nand Lal Chandel, Chairman IIA Himachal Pradesh Chapter, presided as Chief Guest during this function, where he also distributed various toys and other useful materials to the specially-abled students.

Ar. Nandlal Chandel giving away the prizes

IIA Himachal Pradesh Chapter Contribution and Report on Himachal Pradesh Flood and landslide Disaster, 2023 to the Hon'ble Chief Minister of Himachal Pradesh.

Considering the gravity of situation and enormous loss caused to economy, employment, tourism, agriculture, cash crops and built environment, IIA Himachal Chapter constituted a group of experts, comprising available fraternity of architects working in the state government, eminent academicians and practitioners operating in the private sector. Based on the in-depth study made, detailed deliberations and analysis carried out by the expert group of architects of the context, reasons and issues arising out of current disaster; the current report prepared by the IIA Himachal Pradesh Chapter which inter-alia includes detailed suggestions and recommendations for making the state/ built environment safe against such disasters in future must be implemented by involving all stake holders and detailed recommendations appended for consideration and deliberations at the state level was handed over to the Hon'ble Chief Minister Govt. of Himachal Pradesh. Also a contribution amounting approximately 5.0 lacs was credited to Chief Minister Relief fund while handing over the said report on 31 December 2023.

IIA Himachal Pradesh Chapter made a presentation of the study and analysis of recommendations to provide all assistance and support to the state government for creating appropriate policy options, redefining and rationalizing building bye-laws, checking unauthorised/ unplanned construction and creating awareness among people and communities regarding how to make buildings safe and preparing detailed literatures containing do's and don'ts while constructing of buildings.

IIA MAHARASHTRA CHAPTER

IIA Kalyan Dombivli Centre established on 11 November 1990 celebrated its 34th Foundation Day on 25 November, 2023. To commemorate this occasion, the Centre hosted various activities for its members and their families. Sports activities were organised on 17 November 2023 at Dombivli Gymkhana which was clubbed with the 'Lunch and Learn' Continuing Education Programme for members on *Design Considerations for Healthcare and Recreational Facilities*. Sports activities included badminton doubles for men, badminton singles for women, mixed badminton doubles, table tennis singles for men and chess for mens.

IIA KD Centre Executive Committee along with Past Chairpersons
Front Row (L-R) – Ar. Nishikant Chaudhari, Ar. Nimish Daftary, Ar. Laxman Padhye, Ar. D.M. Dalvi, Ar. Dileep Gupte, Ar. Uday Satavalekar, Ar. Keshav Chikodi, Ar. Dhanashri Bhosale, Ar. Rajeev Taishetye, Ar. P.S. Gokhale, Ar. Shirish Nachane
Back Row (L-R) – Ar. Swati nachane, Ar. Aniruddha Dastane, Ar. Sandeep Paranjpe, Ar. Vinayak Patnekar, Ar. Ankur Shetye, Ar. Sarvesh Nandgirikar

The Executive Committee acknowledged the efforts of members who had given guest lectures on the occasion of Teachers' Day and members who had conducted drawing competition in various schools on the occasion of World Architecture Day. A cultural programme *Aavishkaar Kala Gunancha* was organized on 25 November 2023. On this special day, the Centre acknowledged valuable contribution of all past Chairpersons, Secretaries, Treasurers and Executive Committee Members. This cultural program was 'of the members, by the members and for the members'. It gave an opportunity to the members and their families to display their unique talent in performing arts.

IIA Kalyan Dombivli Centre Team Ar. Keshav Chikodi, Chairperson; Ar. Shirish Nachane, Immediate Past Chairperson; Ar. Dhanashri Bhosale, Vice Chairperson and Convener of the event; Ar. Vinayak Patnekar, treasurer; Ar. Uday Satavalekar, Hon. Secretary; EC members Ar. Ankur Shetye, Ar. Sandeep Patil, Ar. Aniruddha Dastane, Ar. Sandeep Paranjpe, Ar. Vivek Vilekar, Ar. Swati Nachane and Ar. Sarvesh Nandgirikar.

IIA KARNATAKA CHAPTER

IIA Hubli-Dharwad Industry Outreach with JSW Group

IIA Hubli-Dharwad's *Industry Outreach and Connect* initiative aimed to build a positive relationship with partners in the construction industry. JSW Group, a conglomerate in steel, cement, paints, and smart homes, invited the IIA Hubli-Dharwad Team for an insightful presentation and interactive session on 24 November 2023 at their regional headquarters. Nine architects from the IIA Hubli-Dharwad Team participated, fostering collaboration and networking opportunities.

IIA- Hubli-Dharwad* Walk with the Architect *Series with Ar. Deepak Hiremath

The *Walk with the Architect* series, designed as a platform for architects to showcase projects and

IIA Karnataka Chapter's 2nd Spotlight Series with Ar. Ajay Sonar and Ar. Bijoy Ramachandran on 8 December 2023 at WTC, Bengaluru

exchange ideas, kicked off with Ar. Deepak Hiremath. Representing DH&A, a distinguished architecture and interior design firm in Hubli, he spotlighted the SANDBOX STARTUP on 26 November 2023. The event gathered 35-40 architects for a breakfast get-together, providing an immersive experience, one-on-one discussions and meaningful insights.

IIA Karnataka Chapter's collaboration with ISHRAE

IIA Karnataka Chapter actively engaged with ISHRAE, where Ar. Rakesh Kodoth, an EC member of IIA Karnataka Chapter, shared insights on *Sustainable Architecture* at ACRETECH 2023 in Bengaluru on 23 September 2023, receiving acclaim from engineers. The collaboration continued with IIA Karnataka Chapter Chairman as the Guest of Honor at the *Hospitality Summit* on 6 October 2023. Future plans include increased cooperation between architects and engineers and fostering quality building design.

IIA-KC at Municipalika 2023

*Municipalik*a, organised by *The Good Governance India Foundation*, invited IIA Karnataka Chapter for their *Future Cities* event from 28 to 30 November 2023 in Bengaluru. Eminent architects nominated by IIA spoke on diverse topics, contributing valuable insights. This collaboration reflects IIA Karnataka Chapter's commitment to meaningful connections and contributing to discussions on the future of architecture in evolving urban landscapes.

Second Spotlight Series with Ar. Ajay Sonar and Ar. Bijoy Ramachandran

The second *Spotlight* event on 8 December 2023, at WTC, Bengaluru, explored the essence of creative design and the intricacies of managing an architectural firm. *Spotlight Architect* Ajay Sonar shared enriching experiences through many of his projects. This was followed by an engaging conversation with Ar. Bijoy Ramachandran. The event, initiated by IIA Karnataka Chapter office bearers and seamlessly managed by key members in IIA Karnataka Chapter also recognised achievements in the initiatives of *ArchiTober 2023* and *IIAPL 2023.*

IIA TAMIL NADU CHAPTER

IIA Chennai Centre

The *IGBC Green Building Congress 2023* featured significant engagement from IIA, particularly the IIA Chennai Centre and IIA Tamil Nadu Chapter. It was held at Chennai Trade Centre from 23-25 November 2023.

Ar. Shanmugham at IIA Trichy Centre

As a key supporting member, IIA Chennai Centre demonstrated its commitment to sustainable architecture, fostering collaboration among members, architects and industry professionals through active networking and *Meet-and-Greet* sessions. The event displayed past achievements digitally, inspiring ongoing projects and contributing to the advancement of sustainable practices. The involvement of IIA entities highlighted their dedication to a greener architectural future, offering diverse perspectives and innovative solutions in the field of green building initiatives

The IIA Chennai Centre's *Arch Thinnai Round Seven*, held at Studio Dcode on Friday, 1 December2023, delved into the growth of an architectural practice. Conversations focussed on challenges faced and the evolution of their approach. Participants engaged in insightful discussions, offering a glimpse into the dynamic landscape of architectural development. Special acknowledgment was extended to Ar. Harini Raja and the team at Studio Dcode for their invaluable support throughout the session, highlighting the collaborative nature of the architectural community. The event provided a platform for professionals to share experiences, fostering a culture of learning and growth within the architectural sphere.

IIA Trichy Centre

The second mentorship programme of the term 2023-2025 benefitted over thirty architects who registered for the event. Senior architect from the region Ar. Shanmugham of *Shanmugham Associates* shared his five decades of experience and expertise under the topic *Practising in Tier 2 Cities* on 7 December 2023. His in-depth understanding and experience in multiple domains inspired the younger generation and assured hope for everyone.

IIA West Bengal Chapter

IIA West Bengal Chapter organised an interactive session with Architect Shri Ravindra Punde on December 15, 2023, in the IIA premises in Kolkata. The topic of the lecture and discussion was "Sustainable Architecture," followed by a sponsorship session and fellowship dinner. The programme was attended by a large number of members of the IIA West Bengal chapter. Ar. Punde is the co-founder of Design Cell and the principal designer for the master planning, urban design, and site planning projects. Under his leadership, the firm has maintained a strong commitment to environmentally and culturally sensitive design outcomes. He uses his practice as a laboratory to pursue a lifelong interest in architecture as a living design medium that depends on and

Interactive session with Architect Shri Ravindra Punde

enriches people's lives in cities, houses, gardens, or elsewhere. He has successfully led several national and international competitions for Design Cell. Apart from his very fundamental and philosophical discourse on architecture reflected in his talk, a visual tour of these projects and competitions was a perfect blend. Motivated by his context and readings of various Indian philosophers and leaders, Ravindra Ji has always strived to give deeper meaning to all his work and has attempted to create design that contributes to society in a meaningful way. He keenly examined from the time of the architects act to the smart city mission today, and he raised three pertinent concerns regarding designing places: firstly, scarcity and limitation of resources, vulnerability because of environmental issues including climate change, degradation of social aspects, public realm, etc. In these discussions, Ar. Punde coined something very interesting: the colonisation of knowledge supporting design. Such as "foul weather," coined by foreigners during colonial times, had curbed resilience. According to him, "in a society such as ours with frugal resources, shifting spatial use may better optimise opportunities across society and build resilient and agile space use to respond to the dynamic needs of development along with the uncertainties of our times," and a "collective consciousness that brings to the front a new connectedness through the digital world" can together be a solution to sustainable architecture and urbanism. Cities going through a change will need closer interrogation for their spatial generative processes, the stratum that is ubiquitous. Transformations and redundancies are rapidly disrupting existing arrangements and formulations. He ended with the message that the future bacons us to forge a symbolic relationship with our environment where our urban spaces evolve as dynamic, responsive, and inclusive realms through innovative thinking and reconciliation of our values. That is where the smart aspect and 'atma-nirbhar' concept merge into a truly sustainable architecture and development. The session was enriching and beneficial for the fraternity. The programme ended with a vote of thanks. The fourth Executive Committee Meeting was held on December 7, 2023, where various important agenda items were discussed.

4th Com Meeting Held at Amritsar, Punjab on 16 December, 2023 for the Term 2023-2025.

Sr. No.	Assoicate to Fellow	Place	Membership No.
1	Ar. Alka Prakash Kemkar	Madhya Pradesh	F08271
2	Ar. Bibhudatta Sahoo	Odisha	F16432
3	Ar. Swopnadutta Mohanty	Odisha	F16376
4	Ar. Laxmi Narayan Singh	Odisha	F19054
5	Ar. Vikas Arunkumar Achalkar	Maharashtra	F11411
6	Ar. Rajiv Kumar Gupta	Haryana	F07407
7	Ar. Amol Anilkumar Hatkar	Maharashtra	F15559

Sr. No.	Direct Fellow	Place	Membership No
1	Ar. Sushma Jeyakumar	Tamil Nadu	F27944
2	Ar. Shraddha Manjrekar	Maharashtra	F27945
3	Ar. Rajesh Luthra	Northern	F27946
4	Ar. Suman J	Karnataka	F27947

Sr. No.	Associate	Place	Membership No
1	Ar. Deepali Kukreja	Madhya Pradesh	A27948
2	Ar. Meenal Mangesh Surawar	Maharashtra	A27949
3	Ar. Sumit Kisandas Jhawar	Maharashtra	A27950
4	Ar. Anoop Keshao Punekar	Maharashtra	A27951
5	Ar. Kshitij Nashine	Maharashtra	A27952
6	Ar. Sunil S Rathi	Maharashtra	A27953
7	Ar. Sadanand Madhavrao Kokate	Maharashtra	A27954
8	Ar. Trupti R Chauhan	Maharashtra	A27955
9	Ar. Sakshi Rajesh Kapoor	Maharashtra	A27956
10	Ar. Tanavi Dattatray Chati	Maharashtra	A27957
11	Ar. Atul Wasudeo Lalsare	Maharashtra	A27958
12	Ar. Induja R Raj	Kerala	A27959
13	Ar. Rajsagar P M	Kerala	A27960
14	Ar. Thomas Joseph	Kerala	A27961
15	Ar. Preet Paul	Punjab	A27962
16	Ar. Neelam Thakur	Punjab	A27963
17	Ar. Ekta Tomar	Punjab	A27964
18	Ar. Suyash Gohil	Madhya Pradesh	A27965
19	Ar. Mayooree Saxena	Madhya Pradesh	A27966
20	Ar. Anuj Jaiswal	Madhya Pradesh	A27967
21	Ar. Aditya Wallabh	Madhya Pradesh	A27968
22	Ar. Shashank Goyal	Madhya Pradesh	A27969
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27	Ar. Sarthak Mandlik	Madhya Pradesh	A27974
28	Ar. Harshita Charupa	Madhya Pradesh	A27975

29	Ar. Parivesh Sahu	Madhya Pradesh	A27976
30	Ar. Prateek Jain	Madhya Pradesh	A27977
31	Ar. Devesh Tripathi	Uttar Pradesh	A27978
32	Ar. Saurabh Grover	Punjab	A27979
33	Ar. Vidushi Sharma	Chandigarh	A27980
34	Ar. Chetna Godiyal	Northern	A27981
35	Ar. Kartik Khokhar	Rajasthan	A27982
36	Ar. MD Sarwar Azad	West Bengal	A27983
37	Ar. Ayushi Basudev Tiwari	Maharashtra	A27984
38	Ar. Shrey Malhar Rao	Karnataka	A27985
39	Ar. Tejalinga	Karnataka	A27986
40	Ar. Shivkumar S Shellagi	Karnataka	A27987
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48	Ar. Sandeep Yashwant Hardikar	Maharashtra	A27995
49	Ar. Sanjay Kumar Pathak	Haryana	A27996
50	Ar. Chirag Umeshkumar Chandani	Maharashtra	A27997
51	Ar. Swapnil Sharad Mendhe	Maharashtra	A27998
52	Ar. Rahul Narayanrao Gulhane	Maharashtra	A27999
53	Ar. Mahendra Tukaram Khambalkar	Maharashtra	A28000
54	Ar. Pankaj Vishnuji Hiware	Maharashtra	A28001
55	Ar. Nayan Pradiprao Kullarwar	Maharashtra	A28002
56	Ar. Vivek Motiramji Sathone	Maharashtra	A28003
57	Ar. Nikita Bansal	Maharashtra	A28004
58	Ar. Sanjay Govind Soni	Maharashtra	A28005
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71	Ar. Kartikkumar Anilbhai Shah	Gujarat	A28018
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74	Ar. Aditya Anvekar	Karnataka	A28021
75	Ar. Anoop Kumar Choudhary	Madhya Pradesh	A28022

76	Ar. Rishi Sahu	Madhya Pradesh	A28023
77	Ar. Piyush Agrawal	Chhattisgarh	A28024
78	Ar. Chinmay Shekhar Sudame	Maharashtra	A28025
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155	Ar. Harshit Singh	Punjab	A28102
156	Ar. Pankaj Kumar	Bihar	A28103
157	Ar. Siva Krishna Rakurthi	Andhra Pradesh	A28104
158	Ar. Risha Zubair Mandaya Purath	Kerala	A28105
159	Ar. Sahiba Gurminder Jagmeet Madan	Maharashtra	A28106
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163	Ar. Moomin Guttoo	Jammu & Kashmir	A28110
164	Ar. Mounis Sharif Jalla	Jammu & Kashmir	A28111
165	Ar. Madeeha Aslam	Jammu & Kashmir	A28112
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RANA PRATAP SINGH
(Administrator JK AYA)

JK Cement Ltd.
Padam Tower, 19 DDA Community Center,
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