

# TRUPTI DOSHI

ARCHITECT – SUSTAINABILITY EXPERT - ENTREPRENEUR

## INDIA

**Principal Architect & Co-founder, Auroma Architecture**  
*Architectural Consultancy & Construction Company*

Trupti Doshi is recognised among the Top 10 Sustainable Architects of India. She is internationally recognised for creating architecture which addresses the 3 pillars of Sustainable Development – People – Planet – Profit.

Trupti has 20+ years of experience in ecological architecture and sustainable engineering. Her work addresses 9 out of 17 Sustainable Development Goals outlined by United Nations.



### Highlights

- Recipient of the prestigious Professional Fellows Program sponsored by the US Department of State Bureau of Educational & Cultural Affairs ([Certificate attached](#))
- Represented India at Professional Fellows Congress (also called World Youth Congress), Washington DC, USA ([Certificate attached](#))
- Selected by US Consul General, South India – Robert Burgess, to meet USA Ambassador to India – Kenneth Juster, for a one-on-one 1 hour meeting to explain nuances of Indian Heritage Sustainable Architecture ([Photo attached](#))
- Selected by US Consulate of India as “Emerging Woman Entrepreneur for ecological preservation from South India” for the GES - Global Entrepreneurship Summit - 2017 during Ivanka Trump’s visit to India. [https://youtu.be/9XoF6\\_thEZU](https://youtu.be/9XoF6_thEZU) ([Testimonial by US Consul General, Chennai attached](#))
- Member of Technical Advisory Committee for India’s National Green Building Rating system for buildings less than 2500 sq.m - Svagriha V3 ([Testimonial attached](#))
- Invited as Visiting lecturer & Studio Critic at University of Oklahoma, Architecture Undergraduate & Graduate Program.  
Topic : Entrepreneurship in Sustainable Architecture  
([Testimonial from Dean of The University of Oklahoma College of Architecture](#))

- **Featured by the United Nations Environmental Program for excellence in Sustainable Development**  
(Please find excerpt of UNEP report <https://www.truptidoshi.com/recognition-testimonials>)
- **Top finalist from Asia for international competition "Houses of Tomorrow" organised by Lafarge Holcim** ([Award awaited](#))
- **TEDx Speaker – India**  
Topic : **Making Smart Buildings before Making Buildings smart**  
<https://youtu.be/492td7WExP4>
- **TEDx Speaker – Europe**  
Topic : **Can a Building be a Person ?**  
<https://youtu.be/9ECz5TZiGB8>
- Recipient of the prestigious **“Woman of Vision” Award** by Realty+ India ([Award attached](#))
- Awarded **"Woman of Pondicherry" for excellence in Sustainable Development** by Lt. Governor of Pondicherry ([Award attached](#))
- Recipient of **“Women Leader in Sustainability” Award** ([Award attached](#))
- **Technical Advisory Committee member of India’s National Green Building Rating System** ([Testimonial attached](#))
- **International Speaker on topics related to Sustainable Development**
- Interviewed Lt. Gov. of Pondicherry & first woman police officer of India – Dr. Kiran Bedi [https://www.youtube.com/watch?v=FOG\\_0GCDgdU](https://www.youtube.com/watch?v=FOG_0GCDgdU)

## Brief

Trupti received a Bachelor of Architecture degree, from University of Mumbai, with Honours in the First Class in 2001. She is a licensed Architect registered with Council of architecture, India with Registration number CA/2002/29860. She is an International Associate Member of American Institute of Architects, membership no. 39307696

She is currently based in India with her head office in Pondicherry – Auroville. She is the Principal Architect of her Architectural Design Consultancy & Sustainable Construction company named Auroma Architecture. <https://auroomaarchitecture.com/>

Her expertise includes climate responsive architecture, appropriate materials & building technologies, rainwater harvesting, waste management, energy efficiency, thermal comfort and use of renewables.

Her TEDx talk in India titled “Making Smart Buildings before Making Buildings Smart” received rave reviews. She then represented India at the first ever Women TEDx in Greece, where she received a standing ovation for her talk “Can a building be a Person?”

Trupti has emerged as **the Top Finalist from Asia for the international competition to create “Houses of Tomorrow” organised by Lafarge Holcim**. Her project “Gratitude Villa” currently under construction will be featured upon completion as the model from Asia. (Award awaited)

Trupti has lectured widely in India and around the world with the passion of a change-maker. She has been invited to lecture at several foreign universities including University of Oklahoma in USA & Technical University of Crete in Greece. She was the speaker from Asia for the Bio-Architecture conference at the University of Algarve in Portugal. She won special mention from University of Melbourne for “Sense of Place – The Indian Subcontinent”. ([Testimonials attached](#))

She represented India at the International Green Summit in Rome in 2019 where her research (soon to be published by Springer) as co-author on the positive effect of green buildings on human well-being was greatly appreciated. Please find the publication here [https://www.researchgate.net/publication/338018954\\_Valuing\\_public\\_perceptions\\_of\\_biophilia\\_impact\\_on\\_human\\_wellbeing\\_2\\_sustainable\\_building\\_case\\_studies\\_from\\_India\\_and\\_Greece](https://www.researchgate.net/publication/338018954_Valuing_public_perceptions_of_biophilia_impact_on_human_wellbeing_2_sustainable_building_case_studies_from_India_and_Greece)

Her lecture topics range from sustainable development, eco-architecture, townships of the future, hidden geometry in nature, sustainability, smart cities, role of technology, social development, Indian architecture and entrepreneurship. Her audience ranges from sustainability professionals, architects, civil engineers, environmentalists & planners to entrepreneurs, start-ups and students.

Trupti has addressed over 300 groups and personally interacted with over 1000 highly prestigious consultants and personalities of national and international repute from academia and industry including top management at India’s Green Rating System GRIHA, The World Bank, UBS - Union Bank of Switzerland, Stanford University, Saint Gobain, Hitachi, Rotary International, Cadbury, Forbes, McKinsey, Bridge Partnership, The Taj group, University of Oregon, MNRE - Ministry of New and Renewable Energy - Govt. of India, TERI - The Energy and Resources Institute, Art of Living Foundation among several others, all of whom have been greatly inspired by her systemic approach and the synthesis of so many diverse disciplines into an integrated whole. ([Testimonials attached](#))

She has been an eminent jury member for

- NASA’s most prestigious ANDC awards ([Testimonial attached](#))
- Sustainable Housing 2030 organised by Indian Institute of Forest Management ([Testimonial attached](#))

- Indian Council of Architecture's Best Undergraduate Thesis Awards

She has been the Chief Co-Architect of Sri Aurobindo Society, an international NGO, for 12+ years, from 2002 to 2014, where she played a key role in master planning numerous large institutional projects spanning several hundred acres. ([Testimonial attached](#))

When she is not working on Sustainable Building Design, you can find her bird watching atop a mountain in Ladakh, capturing the diversity of the world through her lens, meeting inspiring people innovating in Entrepreneurship, learning a new language - currently on her 7th - or simply enjoying the fresh air and writing poetry.

Trupti Doshi's website <https://www.truptidoshi.com/>

Know more about Trupti's core beliefs on Sustainability on Youtube channel <https://www.youtube.com/c/AuromaArchitecture>

### Articles published on Trupti Doshi by reputed Platforms

The Better India, September 2016

<https://www.thebetterindia.com/69718/trupti-doshi-eco-friendly-buildings-auroma-group/>

Your Story, September 2016

<https://yourstory.com/2016/09/trupti-doshi-sustainable-architecture/amp>

Verve Magazine, August 2019

<https://www.vervemagazine.in/people/quality-controllers-trupti-doshi>

The Hindu, October 2017

<https://www.thehindu.com/life-and-style/homes-and-gardens/made-of-the-earth/article19783925.ece>

Go Smart Bricks, August 2018

<https://gosmartbricks.com/trupti-doshi-architect-masters-use-sustainable-building-materials-construction/>

The Future of Design, April 2017

<https://www.tfod.in/art-design-articles/6002/tfod-profile-of-the-week-trupti-doshi-architect-and-integrated-sustainability-engineer>

Indian Women Blog, February 2018

<https://www.indianwomenblog.org/the-youngest-indian-woman-architect-to-be-recognised-by-the-un-transformed-this-tn-village/>

Redo World, July 2020

<https://www.redoworld.in/human-library/trupti-doshi-the-sustainable-architect>

Housing, February 2018

<https://housing.com/news/construction-processes-sync-nature-no-waste/>

The Mapmakers World, October 2017

<http://conscious.shift.over-blog.com/2017/10/example-2-paradigmshift-in-the-buisness-world-made-of-the-earth-about-the-archtect-trupti-doshi.html>

Humans of Bombay, January 2018

<https://www.facebook.com/humansofbombay/posts/772605569615089>

Biltrax Media, August 2021

<https://media.biltrax.com/auroma-architecture-creating-stories-evolving-traditions-and-building-green/>

Casa Vogue, Aug 2018

<https://auromaarchitecture.com/casa-vogue/>

Speaker at Saint Gobain Smart Green Summit, August 2018

<https://youtu.be/LLFm2928u8A>

Speaker at The Economic Times Summit, August 2018

<https://youtu.be/sdgUuV9zPEs> (talk begins at 44:44 min)

Speaker at India Arch Dialogue, Feb 2018

<https://youtu.be/390vwTYBkK4>

Featured on the Cover page of Godrej Click magazine, June 2017

[\(Article attached\)](#)

Speaker at Techsparks, Technology & Entrepreneurship summit, October 2016

<https://yourstory.com/2016/10/techsparks-women-leaders/amp>

Featured as Woman Entrepreneur by Jagriti Yatra – World's longest train journey dedicated to Social Enterprise development

<https://www.facebook.com/jagritiyatra/photos/a.10150458746015819.380528.220389620818/10152906089580819/?type=3>

Featured in Top 50 Next Generation Architects of India to transform the Built Environment, Architect & Interiors India Magazine March 2017, Vol. 8

[\(Article attached\)](#)

Featured by Architecture & Design Foundation, India under series 'Our World beyond Corona'

<https://auromaarchitecture.com/architects-of-india/>

## Articles showing Trupti Doshi among the Top 10 Eco-Architects in India

The Better India, January 2020

<https://www.thebetterindia.com/208627/india-architects-sustainable-homes-cost-company-construction-natural-architecture-kerala-gujarat-nor41/>

Scroll, August 2017

<https://scroll.in/magazine/845662/ten-indian-architects-who-are-harnessing-traditional-wisdom-to-build-the-homes-of-the-future>

Re-thinking the Future

<https://www.re-thinkingthefuture.com/know-your-architects/a2113-15-firms-practicing-vernacular-architecture-around-the-world/>

Re-thinking the Future

<https://www.re-thinkingthefuture.com/sustainability/15-architecture-firms-in-india-practising-sustainable-and-vernacular-architecture/>

Go Smart Bricks, 2021

<https://gosmartbricks.com/indian-architects-who-are-renowned-for-their-sustainable-practice/>

Palmex, February 2018

<https://palmexindia.com/women-eco-friendly-architecture-india/>

Homegrown, April 2020

<https://homegrown.co.in/article/802430/architects-at-the-forefront-of-indias-sustainable-design-wave>

Eartha, July 2017

<http://www.earthamag.org/stories/2017/7/24/not-just-another-brick-in-the-wall-10-indian-architects-who-are-building-sustainable-homes>

Surfaces, February 2019

<https://www.surfacesreporter.com/articles/41051/why-go-green-in-architecture>

Sawdust

<https://www.sawdust.online/traditional-vernacular-architecture/>



*The United States Department of State  
Bureau of Educational & Cultural Affairs*

extends congratulations to

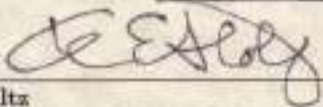
**Trupti Doshi**

for successful completion of the

***Professional Fellows Program***

Fall 2017

Washington, DC  
November 17, 2017

  
Karl Stoltz  
Director, Office of Citizen Exchanges  
Bureau of Educational and Cultural Affairs

*The University of Oklahoma*  
**Gaylord College of  
Journalism and Mass Communication**

*Congratulates*

**Trupti Doshi**

*On the successful completion of  
Bangladesh, Burma and India  
Professional Fellows Program*

*9 November 2017*

  
\_\_\_\_\_  
Joe Foote, Dean



 **The UNIVERSITY of OKLAHOMA**  
**GAYLORD COLLEGE**  
of Journalism and Mass Communication





CONSULATE GENERAL OF THE  
UNITED STATES OF AMERICA

January 2, 2018

Ms. Trupti Prabodh Doshi  
Co-Founder and Principal Architect  
The Auroma Group  
Vanur Taluk  
Villupuram District, Tamil Nadu 605104

Dear Ms. Doshi:

On behalf of the U.S. Consulate General Chennai, I thank you for participating in our Global Entrepreneurship Summit (GES) 2017 event at IIT Madras on November 28<sup>th</sup>.

Your comments and insights as part of the prestigious panel of business leaders, investors, and mentors inspired our audience and reinforced the rationale behind the GES 2017 theme "Women First, Prosperity for All." The U.S. Consulate looks forward to continuing our partnership with experts like yourself in developing programs and expanding networking opportunities that encourage rising entrepreneurs and innovators throughout South India, and advance U.S.-India economic relations and people-to-people connections.

My colleagues and I wish you the very best for 2018, and look forward to continued engagement in the future.

Sincerely,

A handwritten signature in blue ink that reads "Robert G. Burgess".

Robert G. Burgess  
U.S. Consul General  
Chennai



Drapanos Women



TEDx Drapanos Women



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Photo: Moonlight Pictures

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Architect Trupti Doshi

**WOMAN OF PONDICHERRY**

In recognition of your extraordinary achievement and contribution to building a future of equal opportunity for women.

A handwritten signature in black ink, appearing to read 'Vincent A. Misiti'.

VINCENT MISITI

General Manager,  
TempRite® Engineered Polymers Lubrizol Advanced Materials, Inc.

MARCH 08, 2021

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to

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08 March 2021



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Ar. Rajeev Taishete  
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*Dr. (Ar.) Roshni Udyavar Yehuda*  
Dr. (Ar.) Roshni Udyavar Yehuda  
President

*Dr. Sadhana Mahashabde*  
Dr. Sadhana Mahashabde  
Secretary



Ar.Trupti Doshi receiving the "Woman Of Pondicherry" Award for excellence in Sustainable Development from Lt.Gov.Dr.Kiran Bedi

CII



# Women

P U D U C H E R R Y

*INDIAN WOMEN NETWORK (IWN), Puducherry*

*Congratulates*



**TRUPTI DOSHI**

*For her Outstanding Achievements & Contribution*

*IWN Puducherry wishes every success in the years to come.*

*22 March 2017*

**ANU SRIRAM**

Chairwoman

IWN Southern Region



Confederation of Indian Industry

**RADHIGA RAGU**

Chairwoman

IWN Puducherry



THE UNIVERSITY OF  
MELBOURNE

1 April 2005

Trupti Doshi  
Chief Architect, Sri Aurobindo Society  
Beach Office  
No. 1 Rangapillai Street  
Pondicherry - 605001  
India

Dear Trupti,

Congratulations! I am pleased to advise that you have been awarded a special mention in the recent 'Sense of Place - The Indian Subcontinent' essay competition run by the Faculty of Architecture, Building and Planning at the University of Melbourne. The judges were looking for essays that were evocative, expressed a keen sense of detail, challenged traditional readings and conveyed an almost visceral sense of place. They were very impressed with the high standard of essays submitted, and you should be very proud of receiving a special mention.

I am delighted to enclose a copy of the book 'New Conversations with an Old Landscape' by Professor Gatherin Bull as a reward for your efforts and achievement.

As one of the Asia-Pacific region's leading providers of built environment education we actively encourage excellence in our fields of expertise: architecture, landscape architecture, property and construction, urban design and urban planning. If you are keen to learn more about the Faculty's research and study opportunities, please visit our website - [www.abp.unimelb.edu.au](http://www.abp.unimelb.edu.au) - or email us at [abp-info@unimelb.edu.au](mailto:abp-info@unimelb.edu.au).

On behalf of the Faculty, I would like to take this opportunity to wish you every success with your future endeavours.

Yours sincerely

Professor Ruth Fincher  
Dean, Faculty of Architecture Building and Planning



# Jaquar

GROUP

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*Trupti Doshi*

THE AUROMA GROUP, PONDICHERRY

*"Innovation is designing buildings and cities – not as ends in themselves, but as parts of the larger cyclical loops of nature."*

This is to certify that

*Trupti Doshi*

has been selected as one of Architect and Interiors India's **iGEN 50**

**S. Saikumar**  
Dy. Managing Director,  
ITP Publishing India

**Bibhor Srivastava**  
Group Publishing Director,  
ITP Publishing India

**Maria Louis**  
Editor  
ITP Publishing India

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**ARCHITECT**  
and INTERIORS INDIA

# THE TRANSFORMERS

In a world crying out for change, these 50 architects and designers who comprise our iGen hotlist this year could make a telling difference

BY MARIA LOUIS

## TRUPTI DOSHI

PRINCIPAL ARCHITECT, THE AUROMA GROUP, PONDICHERRY

Growing up in Mumbai near the Versova beach, Trupti Doshi found a mystique friend in its waves that eventually planted the desire to design. "I would stand on the promenade on a moonlit night and see a black shimmering void on one side and a bustling world on the other. How did that happen? The idea of being able to create a world out of a void, create space where there was only sound, fascinated me like no other. It led me to becoming an architect," says Doshi with almost childlike nostalgia.

Her journey thereafter is quite unusual. After graduating with honours from the University of Mumbai, she "schooled" under French architect Satprem Maini. "That is how my hands-on training began - and I went on to build Sharanam Rural Development Centre, as one of two architects, by training 450+ local untainted villagers in 20+ highly specialised building skills." The centre was chosen by the United Nations Environment Programme as a model for sustainable development in India.

Other architectural heroes, in Doshi's book, include her grandfather Vanu Bhara, architect of

Mahatma Gandhi's samadhi at Rajghat. She also derives inspiration from the works of philosophers, poets, musicians and architects - the poetic works of Sri Aurobindo, Leonardo Da Vinci's paintings, Michelangelo's sculptures and buildings by Louis Kahn and Antonio Gaudi.

The Auroma Group, she acknowledges, is a family affair. Her brother **Viral Doshi** is an engineer, building technologist and woodworker; his restoration of French villas was awarded by the French Government. "**Viral's** wife is in charge of the visual communication, graphic and web design. We are mentored by my mother - **Rama Doshi**, an interior designer cum landscape artist; while our father **Prabodh Doshi** is a product designer and production engineer," she adds.

A conscious synergy between art, science and sustainability remain the hallmarks of their projects. Auroma French Villamarts, a residential project near Pondicherry, is one of her path-breaking projects till date. The design focus brought about a synergy: in its aesthetic expression with wooden balconies, French cornices and large

French windows and doors; and scientific excellence that is seen in its materials, deep verandahs, orientation to minimise solar gain and maximise breeze

Living and working in Austoville has put a desire in Doshi's heart to someday design a sustainable campus for holistic education, health, eco-tourism and senior living. She sees innovation as designing buildings and cities - not as ends in themselves, but as parts of the larger cyclical loops of nature.

iGen 2017

89



Innovation is designing buildings and cities - not as ends in themselves, but as parts of the larger cyclical loops of nature."



PROJECT  
Auroma French Villamarts, Pondicherry



July 23, 2021

Dear Trupti,

Greetings!

I would like to thank you for accepting our invitation to be a part of the Technical Advisory Committee (TAC) and extending your valuable guidance to GRIHA Council for the development of SVAGRIHA Version 3. We are grateful to you for patiently discussing the methodology and sharing your expert suggestions.

We look forward to your continued association with GRIHA Council.

Regards

Shabnam Bassi  
Secretary  
GRIHA Council

# NATIONAL ASSOCIATION OF STUDENTS OF ARCHITECTURE, INDIA

An ISO 9001:2015 certified NGO established in 1957

Registered on 13th September 1993 under Societies Registration Act 1860, vide no. 24786 as applicable to N.C.T. of New Delhi.

HQ: School of Planning and Architecture, Department of Architecture, 6 Block B, I.P. Estate, New Delhi 110 002.

63<sup>RD</sup> YEAR

2020 - 2021

## EXECUTIVE COUNCIL

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To,  
Architect Trupti Doshi,  
Principal Architect,  
Auroma Architecture,  
Pondicherry

July 17, 2021

Acknowledgement for being the Juror for NASA's ANDC Award 2019-20

Respected Madam,

Greetings from NASA India,  
I, on behalf of the whole council, like to extend our gratitude for being the juror for the Annual NASA Design Competition 2019-20, one of the largest design competition across the nation.

Your comments and suggestions were insightful and extremely useful in shortlisting and selecting the best entries. We would definitely request you to come on board again in the future as a Juror for Design Competitions.

NASA India is one of the largest Architectural student organizations in the world with student participants from more than 250 colleges throughout India and countries around the world. The main objective of NASA India is to create a platform for architecture students to learn and interact, engage them directly and indirectly through both online and offline platforms. NASA India conducts events, conventions, seminars, workshops, design competitions & trophies, and many other activities.

Please feel free to write to me at [secretary@nasaindia.co](mailto:secretary@nasaindia.co)

Regards,



Ashwith Koyyala  
National Secretary | 2020-2021  
National Association of Students of Architecture, India

[secretary@nasaindia.co](mailto:secretary@nasaindia.co)  
[ashwithkoyyala@gmail.com](mailto:ashwithkoyyala@gmail.com)  
+91-9502365680

IDRIS AHAMED SHARIFF  
ADVISOR

CHAITANYA GAJBHIYE  
TREASURER DESIGNEE

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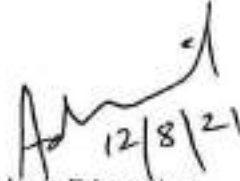
This is to certify that **Ms. Trupti Doshi**, Co-Founder, Principal Architect and Sustainability Engineer of The Auroma Group had served as one of the Jury members of the Sustainable Housing 2030, an Inter-college competition conducted by Climate Change Environment Core Competency Cell (C2EC3) on 20<sup>th</sup> Dec 2020.

Sustainable Housing 2030 being an Inter College Competition had received ideas from 105 students of 41 teams pan India from top B Schools, Architecture Colleges, Technology Builders etc

From this, 8 teams (21 Students) presented their model of sustainable Housing before the Jury. The Jury selected Best 2 teams as Winners and Runners after Detailed presentation. The Winners were from ICT, Mumbai and Runners were from IIFM, Bhopal.

The jury had identified the winners based on Design thinking, Creative Strategies, Efficient resource utilization specifically energy, water and focussed how it aligns with different SDGs. Participants were given valuable insights on the various challenges and innovative solutions for improving their design for Sustainable Housing 2030 by pointing out highlights from policies.

We would appreciate having her again as a Jury member for future events and sincerely thank her for her contribution to the Inter-college competition.

  
Advait Edgaonkar  
Chairperson, SAAC  
IIFM.

Trupti Doshi explaining the nuances of Heritage Architecture of Pondicherry to USA Ambassador to India, Kenneth Juster





USA Ambassador to India - Kenneth Juster's meeting with Ar. Trupti Doshi





**The UNIVERSITY of OKLAHOMA**  
**College of Architecture**

07 November 2017

**Ms. Trupti Doshi, Architect**

**Re: Visiting Lecture and Studio Critic**

Dear Ms. Doshi,

On behalf of the University of Oklahoma College of Architecture, I write to thank you for making time to lecture to our architecture students. The presentation of your work at Sharanam was truly inspiring to our students. Your design of Sharanam is magnificent, filled with sensitive and sustainable strategies while presenting itself with sheer elegance and ideal proportions. Your work there connects well with our theme of *entrepreneurship in architecture*. Our students are encouraged to identify and seize opportunities to initiate ways to improve lives and our built environment. You are a role model for the students, and I thank you for sharing your experiences with them.

Moreover, I wish to express gratitude for visiting with our Fourth-Year architectural design students in the studios of Professor Dan Bulko, AIA and Professor Michael Hoffner, AIA. Students with whom you met to discuss their individual design projects appreciated your insights on how they could improve the environmental responsiveness of their designs. The theme of their competition studio project, and your focus in practice are an ideal match. Again, thank you for making time to advise these students.

I look forward to the possibility of visiting with you again, whether here in Oklahoma or in India. I encourage you to continue to improve lives while building communities. Your attitude, talent and success are an inspiration to all. I look forward to your continued leadership of aspiring citizens and designers across the globe.

Respectfully,

**Hans E. Butzer, Architect, AIA, LEED AP**  
**Dean and A. Blaine Imel, Jr. Professor**  
**Mabrey Presidential Professor of Architecture and Urban Design**  
**The University of Oklahoma College of Architecture**



**HELLENIC REPUBLIC**  
**TECHNICAL UNIVERSITY OF CRETE**  
**School of Architecture**  
**Campus – 73100 Chaniá**  
**+30 28210 37136**  
**[gprocakis@isc.tuc.gr](mailto:gprocakis@isc.tuc.gr)**  
**[www.arch.tuc.gr](http://www.arch.tuc.gr)**

Letter of Declaration / Appreciation  
To Whom It May Concern

Chaniá, 29th November 2017

This is to certify that Ms Trupti Doshi, Architect and Integrated Sustainability Engineer, has given a public lecture at the School of Architecture of the Technical University of Crete TUC in Chaniá.

Her lecture on Architecture & Sustainability, given within the context of the 2nd year design class on 18th September 2017 in the early afternoon at our School, was attended by students of all years and academic staff. It was received very well, and gave great insights into her ideas and work as a Designer and a practising Architect.

George Procakis  
Dipl-Ing TUBS | MA (RCA)  
Architect TEE ΣΑΔΑΣ EAA AKB BDA  
Associate Professor TUC

Faro, 25 January 2016

Ms. Trupti Doshi, Architect

Re : Visiting Lecture at The University of Algarve, Portugal

Dear Ms. Doshi,

I write to thank you for the brilliant lecture you gave to students and faculty of Institute of Engineering of University of Algarve as well as to engineers and architects designing buildings.

Your presentation on **Sustainable strategies for Green Architecture** was exceptional. It inspired our students and faculty alike. We truly appreciate your ideas on improving thermal comfort of buildings through passive design principles which you beautifully explained through case studies of your Architectural work in India. This gave our students practical and energy efficient ways of addressing climate change and global warming in the field of building design.

We also deeply admire the aesthetic value of your designs and recognise its role in improving the quality of life for the users of the building.

Your work is a shining example of responsible and sustainable design. We encourage you to continue your wonderful work. We believe that what you doing is truly beneficial for our planet and impacts the design community in a genuinely positive and meaningful manner.

We are very grateful to you for sharing your knowledge and experiences with us and look forward to keeping connected and inviting you again in the future.

Respectfully,



**Celestino Rodrigues Ruivo**  
**Institute of Engineering, University of Algarve**  
**Chairman of CONSOLFOOD**



Date 14 April 2017

## **TO WHOM IT MAY CONCERN**

### **Recommendation letter for Ms. Trupti Doshi**

Ms. Trupti Doshi is the Architect of our flagship project - Jagriti Enterprise Centre, Purvanchal commissioned by Jagriti, a national non-profit organisation and organiser of JagritiYatra - Journey of Awakening, the world's longest train journey dedicated to Social Enterprise. My relationship with the Trupti is Client - Architect.

I have known Trupti for the past 2.5 years, since she came aboard on Jagriti Yatra in 2014. We selected her as the architect of our Enterprise Incubation Centre soon after.

Trupti's genius lies in embracing a project at its conceptual level as her own, and shaping it with her creativity that is inspired by her inquisitiveness to explore new horizons. It's not easy to convince everyone about new, radical ideas, especially when the person in question is your client. But that's what Trupti does with certain poise. And the reason she does this is because she imbibes the vision of the person and becomes a co-creator in the process. To me, that is the mark of a leader.

My organization has been engaging with Trupti for more than a year for the Incubation Centre idea. She has really championed the idea, collaborated with our various team members, listened to every idea with open mind and heart. Finally she delighted us with her designs which kept on improving every time they came to us. She is not satisfied with the ordinary, neither she let people around her get satisfied with the prosaic. The project brief kept on changing but every time she took it as a challenge and came back to us with something that was beyond our imagination. Her dedication and passion towards the work she takes up is exemplary.

Please do not hesitate to reach out to me if you have any further questions or clarifications.

Sincerely,

Shashank Mani Tripathi

Non-Executive Chairman, Jagriti

Partner, PwC Strategy& India



Trupti Doshi addressing the finalists selected for Jagriti Yatra - the world's longest train journey dedicated to ecological enterprise development



*"It was an honor to hear from Ar Trupti Dashi at our prestigious Smart Green Summit. Her insightful ideas on material, design and technology related strongly with Saint-Gobain idea of sustainable construction.*

*Her mission of revolutionizing the mainstream construction with handmade compressed eco-friendly bricks is a relevant innovation. Her endeavor towards reducing overall carbon footprint by minimizing the dependence on steel and cement and simultaneously delivering cost efficiency in construction is highly commendable.*

*I am highly convinced that her purpose of responsible architecture aimed at occupant comfort and conservation of the natural surroundings, and at the same time promoting employment to local community, resonates well with Saint-Gobain's purpose of "Making the world a better home!"  
My best wishes to her in continuing her journey towards promoting sustainable architecture and well-being!"*

Venkat Subramanian,  
Managing Director, Saint-Gobain Gyproc India



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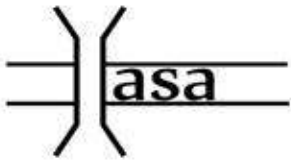
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**AR. TRUPTI DOSHI**

Principal Architect  
Auroma Architecture  
Pondicherry

**16<sup>TH</sup> JUN 2021**

Respected Madam,

Thank you very much for delivering an informative and thought provoking lecture as our esteemed Guest Lecturer on **1<sup>st</sup> March 2020** at **ArchCult'20**. It was one of the most inspiring and insightful talks for all the participants at our event. It was our honour to have you as one of our Guest lecturers.

We know your time is precious and we are glad you shared some of it with us. We look forward to your participation in future events.

Thank you again for helping make this event a great success and we hope to see you again soon.

**SINDHUR DUTTA**

Organising Head







# INTERNATIONAL WOMEN'S CONFERENCE

February 14<sup>th</sup> - 16<sup>th</sup>, 2020 | The Art of Living International Centre, Bangalore



July 20, 2021

## TESTIMONIAL

**Ms. Trupti Doshi** was one of our distinguished Speakers in the 9<sup>th</sup> International Women's Conference, for the Session: "Nature and the Healing Touch" on the 15th February 2020, at the Art of Living International Centre in Bangalore, India.

Ms. Doshi emphasized the importance of creating living spaces that suited the climate and environment of the place they were built in. She spoke on the hidden geometry in nature and how she sees buildings and cities as complex living organisms, which are parts of the larger cyclical loops of nature. Her ideas on sustainable living solutions that support nature were the highlight of her talk.

We are very happy to have welcomed her as a Speaker and hope that she will be a part of our future conferences and events.

Sincerely,

**Chinky Sen**  
Director, International Women's Conference

The Art of Living International Centre,  
VVMVP, 21st km Kanakapura Road, Bangalore 560082

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📘 The International Women's Conference





**When we combine what the human needs with what the planet needs we will have a sustainable environment**

**- Trupti Doshi,**  
*Co-founder & Principal Architect, The Auroma Group*



**INTERNATIONAL WOMEN'S CONFERENCE**

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**@truptidoshiarchitect @voicesofiwc #IWC2020**



**The Art of Living** ✓  
@ArtofLiving



- 1) Harvest water
- 2) Harvest food
- 3) Harvest energy

That's what Trupti Doshi, an award-winning architect specializing in eco-friendly design and sustainability engineering, says are the three crucial ways to live sustainably [@VoicesofIWC](#).

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PONDICHERRY MIDTOWN

Pondicherry, 25 July 2021

To  
**Architect Trupti Doshi**  
Aroma French Villaments  
Chinna Kottakuppam  
Old Auroville Road  
TAMIL NADU

**Subject:** Talk on "Hidden Geometry in Nature"

**Dear Architect Trupti Doshi,**

Your meticulous approach with an unexpected outcome at our Regular Rotary Meeting on Thursday was highly appreciated.

The clever documented presentation with even tangible examples made the difference on how we could unravel the hidden geometry in nature and its importance in our daily life.

Through proper interaction with our members, we were able to feel the added value of this eye-opener talk.

Moreover because of the passion and energy you have put into this conversation, I would certainly recommend you for this interesting topic that's so close to us, but hardly known.

Thank you for your time and expertise.



Rtn. Peter A Claeys  
President 2021-2022

Abhinav Khandelwal  
Founder

**March 28, 2018**

Dear Ar. Trupti Doshi,

Please accept my heartfelt thanks for your contributions towards making India Arch Dialogue 2018 a successful and well-received event. As a speaker, you've helped to further the dialogue on architecture and design and you've left an indelible mark on the community by sharing your knowledge with us. Your journey is inspiring. All I have to say is that I am sure, the future will be beautiful because of you and people like you.

Thank you, once again, for being a part of this cherished initiative.

*Warmest Regards,*



*Abhinav Khandelwal*  
*Founder - FCML Design Initiative*



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C. REF. : LBH/COA/190/2019

DATE : 18/09/2019

To,  
Trupti Doshi,  
Principal Architect,  
Auroma Architecture,  
Pondicherry.

Re. : Speaker at the 'Meraki' Seminar of 2019.

Dear Ms. Doshi,

On behalf of Dr. Baliram Hiray College of Architecture, I thank you for making time for the attendees, students and guests alike, at the Meraki Seminar 2019.

Your magnanimous approach towards our theme for the Meraki Seminar 2019, 'Interlacing Perspectives', was something the students and all the attendees were in awe of. The budding years of an architecture student is marked by their brilliance in understanding concepts which could shape the skylines of the future and you, Ms. Doshi, have helped in inspiring students to do so with your informative and illustrative presentation.

I wish you all the very best for your future endeavours and would be honoured to host you again for one of our premium seminars. I look forward to your continued leadership of aspiring citizens and designers across the globe.

Thanking you,

Yours faithfully,

For Dr. Baliram Hiray College of Architecture

Prof. (Ar.) Sunil Magdum  
Principal

To,  
Trupti Doshi  
Principal Architect  
Auroma Architecture  
Pondicherry

Date -30<sup>TH</sup> June 2020

Dear Ms. Trupti Doshi,

Ref - Vim-Alte-001

We, at VIMOVÉ Foundation would like to express our heartfelt gratitude to you for being a Speaker on World Environment Day 2020 at Alternative 20, on the subject "Sustainable Strategies for Net Zero Homes". Alternative 20 is our Flagship event we keep conducting social initiative on various themes every year under the event name ALTERNATIVE to spread the positive awareness to the citizens on world environment day every year.

Your talk at Alternative 20 during premier virtual show , alongside international celebrities like Kiram Mazumdar Shaw, Chairperson Biocon, Mohan das Pai and Actor Rana Daggubati many more was extremely well received.

Your talk, most relevant for our times, especially for World Environment Day showcased how buildings could be in sync with the environment. Your ideas in "Sustainable Strategies for Net Zero Homes" presented revolutionary methods for Water management, Waste recycling, Energy Efficiency and Solar powered Homes.

This awareness showcased inspiring and practical ideas towards the meeting the objectives of UNs Sustainable development enabling targets of reducing greenhouse gas emission intensity of its GDP by 35% below 2005 levels by 2030.

We thank you once again for being part of our panel of esteemed speakers and inspiring us towards creating a greener happier future for our communities and our planet at large. We look forward to having you with us once again.



30.06.2020  
For VIMOVE FOUNDATION

VINAY SHINDHE -Founder & Director





*Sri Aurobindo Society*  
Creating the Next Future

Society House, 11, Saint Martin Street, Puducherry - 605 001

JH

29<sup>th</sup> November 2016

### Certificate of Experience

This is to acknowledge that Ms. Trupti Doshi has worked as an Architect on three projects of Sri Aurobindo Society, Pondicherry, namely, Sharanam Phase 1, Sri Aurobindo Foundation for Integral Management, Matrikunj and Sri Aurobindo International Institute for Integral Health and Research, from Feb 2002 to May 2014.

During her stay, she has offered her professional services on architectural designs, master planning, building design, earth technology, landscaping and environment protection as well as other related issues, as required and referred to her from time to time by Sri Aurobindo Society, who are the owners and end users of these projects.

She was one of the team of two architects for Sharanam Phase 1, a unique sustainable project by Sri Aurobindo Society, which has received international recognition by UNEP.

During her long service with Sri Aurobindo Society, Pondicherry, we found her dedication, sincerity and approach towards her work and co-workers to be extremely positive with leadership qualities.

She has left the organisation on her own in pursuit of other professional prospects and we wish her all the best in her future endeavours.

(Pradeep Narang)  
Chairman

*"To know is good, to live is better, to be that is perfect." - The Mother*

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# THE 'STATE OF PLAY' OF SUSTAINABLE BUILDINGS IN INDIA

UNITED NATIONS ENVIRONMENT PROGRAMME



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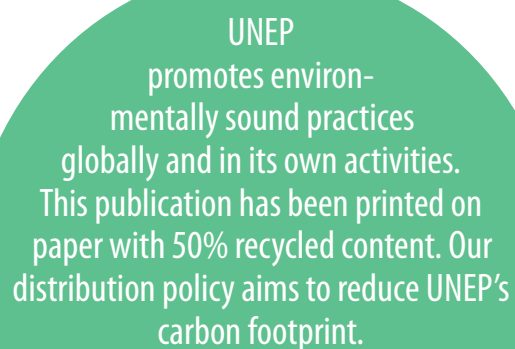
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# THE 'STATE OF PLAY' OF SUSTAINABLE BUILDINGS IN INDIA



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\* Note: The ‘State of Play of Sustainable Buildings in India’ section has been prepared by UNEP-SBCI and does not necessarily represent the views of TERI.

### About The Energy and Resources Institute (TERI):

A dynamic and flexible organization with a global vision and a local focus, TERI was established in 1974. While in the initial period the focus was mainly on documentation and information dissemination activities, research activities in the fields of energy, environment and sustainable development were initiated towards the end of 1982. The genesis of these activities lay in TERI’s firm belief that efficient utilization of energy, sustainable use of natural resources, large-scale adoption of renewable energy technologies and reduction of all forms of waste would move the process of development towards the goal of sustainability.

All activities in TERI move from formulating local and national level strategies to suggesting global solutions to critical energy and environment-related issues. It is with this purpose that TERI has established regional centres in Bangalore, Goa, and Guwahati, and a presence in Japan, Malaysia, Russia, Africa and the United Arab Emirates. It has also set up affiliate institutes: TERI-NA (The Energy and Resources Institute, North America) Washington DC, USA, and TERI-Europe in London, UK.



## Acknowledgements

Author: Ms. Priyanka Kochhar, Associate Fellow and Area Convenor, Centre for Research on Sustainable Building Science, TERI

The author would like to thank Ms. Mili Majumdar, Dr. Hina Zia, Ms. Pooja Shukla, Mr. Apoorv Vij, Mr. Tarun Garg, Ms. Sonam Shah, Mr. Gaurav Shorey from TERI; and Dr. Peter Graham from University of New South Wales for their valuable comments, suggestions and inputs in the research. The author would also like to thank Mr. Dharmender Singh for secretarial assistance. The information presented in the paper emerged from inputs shared by: Abhikram: Mr. Nimesh Patel and Ms. Parul Zaveri; Footprints EARTH: Mr. Yatin Pandya; Jaisem Foundation: Prof. A. R. Jaisem; Good Earth: Mr. Jeeth Iype; Sri Aurobindo Society: Mr. Jatin Lad and Ms. Trupti Doshi; Ashok B Lall Architects: Prof. Ashok B Lall; Bureau of Energy Efficiency: Mr. Sanjay Seth; Shri S P Gon Choudhari, Dr. Arvind Krishan

The viewpoints expressed in the paper are of the author and do not necessarily reflect the views of the institute. The author is solely responsible for any inadvertent errors in the paper.

Design / layout: Thad Mermer

## Executive Summary

The Indian construction industry is experiencing a fast rate of growth with a sustained increase in gross built-up area of 10%<sup>1</sup> per annum over the last decade. Demand for housing, expansion of organized retail, commercial office spaces by multi-nationals, the setting up of special economic zones (SEZs), are all increasing. This is spurred on by increasing per capita income and standard of living.

Energy consumption and associated greenhouse gas emissions will therefore continue to rise unless actions to direct the construction industry towards sustainable consumption and production are taken urgently.

More positively, the practice of green building is becoming more popular in some sectors. The secretariat of India's bespoke green-building rating scheme Green Rating for Integrated Habitat Assessment (GRIHA) has set a target for five million square meters of built up space to be GRIHA compliant by the end of 2012. Further, the Indian Green Building Council also targets to register ninety three million square meters of built up space with LEED India. While important, this alone will not be enough to mainstream sustainable design and construction practices in India. Achieving this requires:

- Bridging the knowledge gap on sustainable building strategies, which exists at various levels within the industry;
- Enforcing implementation of strategies to encourage adoption of sustainable, green and energy efficient buildings; and
- Conducting research and development on technology for lowering costs.

Support and cooperation between all the players of the sector is required. The immediate actions to be considered include:

- Development of a national platform to project individual efforts and exhibit financial benefits of sustainable buildings;
- Undertaking extensive capacity-building

- at various levels, including construction of demonstration projects across the country;
- Developing a business model to provide a further impetus to initiatives to minimize the detrimental impacts of construction on the environment and society;
- Introducing a green rating for residential developments and directing real estate developers to adopt this; and
- Developing, enforcing and implementing sustainability performance benchmarking for industry sectors.

This report on the 'State of Play' provides a representative understanding of sustainable building activity in India, which has a unique traditional knowledge, and is a developing country in terms of the modern world. The report explains the state of sustainable buildings and construction in India including best practices, successes, barriers and recommendations for further implementation towards mitigation of climate change impacts.

Considering the wide diversity that exists in the building typology across India, issues and concerns range from addressing low cost, low energy buildings to high cost high energy buildings through various income groups and climatic zones of the country. The following report has been structured to address the various schemes (i.e. government codes, strategies, policies vernacular and other institutional schools of thought) that co-exist to direct building construction towards a minimum detrimental impact on the environment. Various case studies have been used to explain the indicators of 'sustainability issues' with an emphasis on life cycle and actual performance of buildings.

Seven case-studies of institutional and residential buildings in three prominent climatic zones of India, namely composite, warm-humid and hot-dry, have also been studied. Based on the good practice compliance of buildings, information received and information available in public domain, the case studies from representative climate zones have been identified for the purpose of this study.

The following four approaches, which have been endorsed by prominent practitioners in the field of

sustainable and green building design, government bodies, government agencies and private bodies for voluntary adoption by relevant stakeholders, have been taken up for discussion in the report:

1. Vernacular schools of thought
2. Green ratings for green buildings
3. The Energy Conservation Building Code (ECBC)
4. Scheme for star rating of office buildings

These four approaches are described through case-studies which are representative of the 'state of play' for sustainable building in India.

### VERNACULAR BUILDING

Vernacular schools of building design are deeply embedded in the traditional wisdom that offered beauty and joy to enhance the cultural milieu of India's built environment. As reflected through the various case studies, each project addresses an integrated approach to design with a special emphasis on climatology, solar passive architecture, bio-climatic design and low energy architecture to achieve appropriate human comfort, low-energy low-cost community development, use of recycled municipal/domestic waste as building material; and a financial model that may be implemented for successful promotion of sustainable building design principles respectively.

The following case studies have been used to further explain the vernacular schools of building design that exists in various parts of India.

1. Torrent Research Centre, Ahmedabad to represent the *Mera Wala* green school of thought;
2. *Sharanam*- a purpose-built training centre for rural development, Tamil Nadu to represent the *Sri Aurobindo Society* school of thought;
3. *Manav Sadhna* Activity Centre, Ahmedabad to reflect the sustainable community school of thought; and
4. Solar Housing Complex (*Rabirashmi Abasan*), Kolkatta to represent a financially sustainable model for green buildings.



The vernacular schools of thought as described through the various case studies, reflect the specific sustainability priorities, which have been established in specific regions of the country. While 'mera wala green' seeks to establish common sense solutions with emphasis on Indian 'needs' from local solutions in terms of material use and traditional wisdom; *Sharanam* emphasizes on adopting an integral approach towards development with a special focus on the socio-economic and skill development dimension.

*Manav Sadhna* Activity Centre demonstrates that a building can become an economic activity to empower the poor and exhibits a potential for becoming a cottage industry for economic self-reliance. With emphasis on the socio-economic aspects of sustainable building design, this vernacular school of thought reiterates the holistic approach followed for sustainable buildings in India. Taking this a step further, the Solar Housing Complex focuses on the financial aspect of sustainability that may be replicated on a larger scale.

In circumstances where it is not possible to address all aspects of sustainable design, environmental and economic concerns take priority in order to direct building construction towards green design. Green rating of buildings as described below encourages adoption of green design strategies rather than a more holistic sustainability approach.

## GREEN BUILDING

There are two prominent green rating systems that co-exist in India. One system, Green Rating for Integrated Habitat Assessment (GRIHA), is the national rating system for the country endorsed by the Ministry of New & Renewable Energy (MNRE), Government of India. Another system, Leadership in Energy and Environment Design (LEED), has been launched by the India Green Building Council (IGBC). The Centre for Environmental Sciences and Engineering at IIT Kanpur, the first GRIHA compliant building of India, and the Institute for Rural Research and Development (IRRAD), Gurgaon, which is a LEED India compliant building have been used as case studies to highlight the nuances of the two green rating systems.

Both green rating systems aim to quantify the environmental, economic and socio-economic benefits of green building design with emphasis on sustainable site planning, optimized energy performance, efficient materials and construction practices, water and waste management strategies; and indoor environmental quality. The rating systems also emphasize life cycle cost analysis so that the client has an option of making informed choices when opting for green technologies which may have an initial incremental cost with acceptable pay back periods.

## ENERGY EFFICIENT BUILDING

In case it is not feasible for a given building project to be compliant with the green rating system, energy efficiency is addressed as the next major sustainability parameter to be addressed. The Bureau of Energy Efficiency (BEE) provides an option for new buildings to be compliant with the Energy Conservation Building Code (ECBC), which contributes to significant energy savings through the operation of an efficient building, contributing to CO<sub>2</sub> emission reduction. The Fortis hospital building, which is ECBC compliant, indicates the implications in terms of building specifications and benefits from compliance with the code.

Further, the BEE has also developed a scheme for star rating of existing buildings that meet the energy efficiency benchmarks as established, to further narrow the parameters of sustainability in building design. As discussed in this report, the Reserve Bank of India (RBI) building at Bhuvneshwar has been awarded the first five star rating for being energy efficient.

The report goes on to describe the key barriers and way forward for incorporation of sustainable, green and energy efficient building design parameters in the Indian building sector. It provides an outline of the knowledge gap at various levels, issues pertaining to lack of effective enforcement of policies; and lack of financial incentives, which deter stakeholders from large scale adoption of sustainable design strategies and energy efficient technologies.

- Humidity not allowed to exceed 65-70% in summer;
- Air movement velocity not allowed to exceed 1.5 feet/second;
- The building which was designed for 150 occupants in 1997 accommodated more than 600 users in 2005. The buildings have accommodated 250% additional users, without significant discomfort;
- Everyone using PDEC areas breath 100% fresh air, not re-circulated air;
- It gives healthy financial returns on investment in building costs. The entire cost of the building has been recovered from the electrical savings in 13 years of operations and energy conservation.

The post-occupancy survey of 2004-05, conducted by University of Technology, Sydney, Australia, and Victoria University of Wellington, New Zealand concluded that “the total energy consumption for PDEC and AC combined (includes light, equipment and AC for 2 blocks) for the 6 blocks in 2005 was 647000 kWh”. This averages to 54 kWh per square metre. Clearly the climate responsive approach to buildings such as TRC comprising labs and offices with extended hours of operation in hot dry climate of India, is comparable to available targets for commercial buildings.

In conclusion compliance with and replication of the ‘mere wala green’ school of thought offers an approach to sustainable building which enables:

- Focusing on solutions for India’s local needs;
- Finding local solutions from local resources;
- Finding ways of decreasing our consumption levels;
- Learning from our own traditional wisdom, for simple cost effective solutions;

## 1.2 SRI AUROBINDO SOCIETY (SAS) SCHOOL OF THOUGHT

Sri Aurobindo Society (SAS)<sup>18</sup> is an international NGO established since 1960, working in multiple fields including health, education, management and rural development. ‘Sharanam’, a purpose-built training centre for rural development has adopted an integral approach to green building, which has been described briefly as follows.

### Sharanam

*Sharanam* is designed as training and administrative centre of a larger rural development programme initiated by SAS, in the surrounding villages of Villupuram district, Tamil Nadu. *Sharanam* is the main venue for a variety of programmes in rural development covering a range of topics including rural health and hygiene, sanitation, education, income-generation, teacher training, self-development among women, youth and children facilitated through psychological development.

The principal facilities at *Sharanam* include a multipurpose hall (max. capacity 150), administrative offices, library, computer room, demonstration technologies, stores, kitchen and washrooms. In order to meet the functional requirements which are also in sync with the SAS design philosophy, a unique, inspirational and green building suited to a rural context has been designed to restore the ecological landscape of the site scarred due to illegal mud quarrying. Comfort conditions in an excessively hot and humid climatic zone (summer temperatures touching 40 °C and annual average 70% relative humidity) have been targeted to construct a modern highly-engineered superstructure using earth as the primary building material and minimize use of steel and cement. The *Sharanam* training centre was created not only for, but by local workers who were employed in the construction of their facility.

The design and construction of *Sharanam* embodies an integral approach towards development which encompasses the ecological, climatic, cultural, technological, environmental and socio-economic dimensions. These are outlined in the following paragraphs.

The site, landscape and ecological issues have been addressed by integrating the following activities through the construction process:

- Illegal mud quarrying was stopped to restore the ecological landscape of site.
- Concerted efforts at soil healing through plantation of new indigenous flowering trees nurtured by organic methods, bunding and mulching were undertaken towards revival of a local drip irrigation system has reduced the irrigation water requirement by 75%.
- Water has been conserved through ground water recharge wells, trenches and contour bunds. Surface run-off diverted to a reservoir for re-use in irrigation.
- Top soil from areas demarcated for construction carefully removed and stored separately for use in gardening.
- The entire building has been designed around existing trees and no tree has been cut.

Climatic and cultural response has been addressed in the following way:

- The design of *Sharanam* has been inspired by the careful study of traditional Tamil buildings, namely, temples, Chettinad houses and local vernaculars, which demonstrate a strikingly similar response to the year-round hot and humid climate of Tamil Nadu, i.e. shade from the intense heat and maximum ventilation to combat the high humidity.

**Figure 4: Rammed foundations**



Source: Lad, J.(2009). Sri Aurobindo Society

- Several solar passive strategies have been employed to achieve thermal comfort in *Sharanam*. Some of them are: building orientation that is perpendicular to the predominant summer breeze, evaporative cooling through water bodies, effective use of piers for funneling breeze, large fenestrations, increased height of the building and roof overhangs for maximising 'stack effect'.

Green building materials and appropriate, innovative technologies have been used. The focus has been to minimize the use of energy intensive and environmentally polluting materials and equipment, and to demonstrate use of environmentally responsive materials and sustainable technologies.

Earth has been used as the primary building material in two ways:

1. **Rammed earth foundations:** Foundation pits have been precisely dug and the same excavated earth sieved, mixed and rammed to ensure zero wastage of raw material. No soil has been brought from outside (Figure 4).
2. **Compressed Stabilised Earth Blocks (CSEBs)** have been manufactured with earth from the lowest point on site. Almost 100,000 custom-made CSEBs, stabilized with only 5% cement have been made in nine different sizes for the main superstructure. Soil for these blocks was procured from a small area measuring 9 x 15 x 1.5 m which is integrated into the design as the surface run-off reservoir.

Enormous environmental, structural and cost benefits have been realised using CSEBs manufactured at *Sharanam*. In comparison to the locally available wire cut bricks, the CSEBs are 4 times cheaper, 10 times less polluting, and 3 times as strong and of a far superior quality.<sup>19</sup>

The aim has been to design and construct a strong roof, beam, foundation etc. using the least amount of material (e.g. the main roof, which is a segmental vault in earth spans 9.5m and is 42m long). It has been built with 36,850 custom-made CSEBs with the roof thickness reduced to only 9 cm at the key stone. The CSEB masonry uses stabilized

**Figure 5: Precision being executed at site**



Source: Lad, J.(2009). Sri Aurobindo Society

earth mortar which is 1 mm thick and allows 140 tonne roof to be built using only 33 bags of cement (Figure 5).

Environmental practices and resource management practiced on site include:

- Use of renewable energy in the building design.
- Rain water harvesting including segregation of roof-top and surface run-off with separate storage of roof-top water for potable purposes.
- Recycled and treated waste from green toilets and kitchen used for irrigation.
- Construction methods used ensure zero construction waste.

The integral approach at *Sharanam*, goes beyond providing a 'green building' as a finished product that can be quantitatively evaluated through carbon emissions or numbers in energy audits. It is the integral approach towards building *Sharanam*, which includes not only the cultural and climatic context of Tamil Nadu and technological context of sustainability, but also the wider human dimension and the social context of rural development, which has contributed to the 'greenness' of *Sharanam*. As such, the project provides a qualitative expression of a process of building that constitutes architecture for sustain-

ability. Here, the act of building is seen as a means of self-development for all concerned.

In addition to demonstrating low environmental impacts the project has been successful in:

- Redefining the role of the architect as a hands-on professional engaging in the wider, inter-disciplinary context of development.
- Instilling the wider values of 'modernity' into the process – quality, precision, discipline and organization.
- Eliminating the contractor, which removes the heavy percentage cuts (about 30% generally) taken by brokers and ensures all workers receive their due wage on time since the architects are leading the construction by training local unskilled workers from surrounding villages during the process of construction.
- Skilled local workers e.g. masons, have their skills upgraded and introduced to new techniques and higher standards of work.
- The cost of the unique superstructure is 40% cheaper than conventional reinforced concrete buildings.

### 1.3 SUSTAINABLE COMMUNITIES

The design philosophy and considerations of the sustainable communities school of thought<sup>20</sup> revolve around, and are inspired by, Gandhian principles of enlightenment of the poor and the oppressed, advocacy of sanitation, and education of the poor. It is propagated by *Manav Sadhna*, a non-governmental organisation which follows the philosophy of love all and serve all; and is engaged in constructive humanitarian projects that cut across barriers of class and religion while addressing issues faced by socio-economically neglected segments of society. Non-polluting environment, economic empowerment and affordable built forms are the three key dimensions of this initiative.

Considering that nearly 27.4 million tonnes of waste is produced daily in the urban centres of India, and that cities like Ahmedabad alone produce 2750 metric tonnes<sup>21</sup> the initiative is an attempt to recycle municipal and domestic waste into building materials.

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## About the Sustainable Buildings and Climate Initiative

Launched in 2006 by the United Nations Environment Program (UNEP), the Sustainable Buildings and Climate Initiative (SBCI), formerly the Sustainable Buildings and Construction Initiative, is a partnership between the private sector, government, non-government and research organizations formed to promote sustainable building and construction globally.



**Sustainable Buildings  
and Climate Initiative**

*Promoting Policies and Practices for Sustainability*

SBCI harnesses UNEP's unique capacity to provide a convening and 'harmonizing' role to present a common voice from the building sector on climate change issues. More specifically UNEP-SBCI aims to:

1. Provide a common platform for and with all building and construction stakeholders to collectively address sustainability issues such as climate change;
2. Establish globally consistent climate-related building performance baselines and metrics for monitoring and reporting practices based on a life cycle approach;
3. Develop tools and strategies for achieving a wide acceptance and adoption of sustainable building practices throughout the world;
4. Implementation - Promote adoption of the above tools & strategies by key stakeholders.

For more information,  
see [www.unep.org/sbci](http://www.unep.org/sbci)

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*India has one of the fastest growing construction sectors in the world. New construction spending has grown by as much as 10% in the last five years and built floor area has more than doubled. This increase in construction activity is being driven by rapid urbanization. About 30% of India's 221.1 million households are now in urban areas with the urban population projected to more than double by 2050. This rapid growth in India's building sector no doubt presents opportunities for improving the living conditions and livelihoods of millions of people. However, in order to be sustainable the environmental pressures of increased demand for resources coupled with a rapidly changing climate must be addressed.*

*This 'State of Play' report provides representative examples of the range of sustainable building activity in India. The report explains the state of sustainable buildings and construction in India including best practices, successes, barriers and recommendations for further implementation towards mitigation of climate change impacts and a transition to more sustainable built environments.*



LOCKING SOLUTIONS  
AND SYSTEMS

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# One for Nature

Trupti Doshi, Architect,  
elucidates the art of designing eco-friendly  
raw materials.

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## Empowering Planet Earth

Dear Readers,

In this edition of Click!, we've put our Greenest foot forward to bring you stories of professionals who are doing their bit to conserve and protect Mother Nature.

We owe a green and clean tomorrow to posterity. At Godrej, it has been our legacy to respect the environment while enabling life to be enriched along with it, rather than by destroying it. Godrej has initiated the Good and Green initiative, which aims to create a more employable workforce, build a Greener India, and innovate for Green products by 2020. The conservation of our mangroves in Vikhroli, Mumbai, is another example of our sentiment towards preserving the environment.

Our cover story is about an eco-friendly architect who has given the landscape of Puducherry a true gem in form of Sharanam, a Centre for Rural Transformation. Closer to home, read about our factory in Goa that is preserving its coastal divinity by paying respect to its surroundings.

We hope this edition of Click! makes you think about the footprint we are leaving behind on our Planet.

Happy reading!

*Shyam Motwani*

**Shyam Motwani**  
Executive Vice President  
and Business Head  
Godrej Locking Solutions and Systems



One of the most prestigious projects of Sri Aurobindo Society, Sharanam—Rural Development Centre, was started in Puducherry in south India in 2007.

## One For Nature

Trupti Doshi defines sustainability as doing more with less. Her work mirrors her ideology of recognizing that Earth is a finite resource and worthy of immense respect. She talks to us about building with a heart and soul.

A large part of most of our cities are unimaginative concrete jungles. More often than not, buildings are designed as ends in themselves - stacked boxes of copious amounts of concrete, steel, brick and facades of glass to enclose interiors, which are ubiquitous and dull, powered by artificial lighting and air conditioners.

Most people living and working in these spaces have no idea about the movement of the Sun or where the breeze comes from. If architects working in these surroundings do not take the effort of reconnecting themselves back to Nature, it will be difficult for them to think outside the box and understand buildings and cities as parts of the larger cyclical loops of Nature. The incorporation of sustainable building materials in construction is not easy or difficult to follow. A sustainable practice is my soul's calling. I cannot create another way.

### India's ready for Green

I find tremendous amount of support and ample examples from India to urge me on this journey. There is a growing awareness among various stakeholders from the construction field such as sectors like agriculture, offices, manufacturing, institutes, etc. I see a wave of openness and rising mindfulness when it comes to eco-friendly building.

However, a small plot owner in a city suburb or town who wants to build their own house, would be able to go the sustainable way only if it's financially conducive. It is fair not to expect the incorporation of sustainability in such cases unless the person has an awareness and knowledge in the subject and has a highly developed conscience. However, when it comes to any public building such as offices or institutions, eco-friendly building and sustainable construction should be made the norm, not an option. And, I'm happy to report that from those areas, there's definitely a growing awareness.

### Making Green building 'mainstream'

There is an old Native American saying which states, only when the last tree is cut down, the last fish dead and the last stream poisoned will man realize that money cannot be eaten. So when it is suggested that eco-friendly building be made 'mainstream', and more freely incorporated, the unspoken word beneath it is cheap. Sadly, whatever is cheaper will become mainstream. But in my understanding, cost should not be calculated only in terms of finance but with respect of environment also. This parallel system of costing is most important to consider. Thus, in terms of environmental cost, a sustainable building will cost much cheaper than a mainstream one. This is because it is much easier to procure standard raw materials and build a regular edifice.



Auroma French Villaments is a residential community of 24 French-styled villa apartments based on The Mother's symbol for grateful Seekers, by grateful Seekers.

### 5 ways to practicing sustainability

There are five ways in which we can practice and incorporate sustainable building in construction. These are explained here:

**Planet:** Let's give a long thought to how we can be more respectful towards the resources our Planet has to offer.

**Prosperity:** Think about how sustainable construction can be made profitable without compromising Nature or the comfort and convenience that we offer to people.

**People:** Our processes should focus on enriching social capital. For the second largest economy in our country after agriculture, not enough is being done to increase the skills of the people in the construction industry.

**Progress:** The only way to combine the earlier points is through innovation, which means progress. This progress will not come if old and outdated processes are followed in the industry.

**Place:** We have to construct by keeping the uniqueness of a place in mind. The one-size-fits-all approach in construction is not feasible and when the peculiarity and uniqueness of a place is ignored and blueprints of another place and geography are blindly replicated, this goes against sustainable construction.

### Nurturing Nature

Eco-friendly construction is here to grow. If the knowledge and practice of sustainability doesn't keep growing, then we're surely heading for a disaster on the planet in the next few decades! Globally, people are really enthusiastically talking about the prospect of mainstream sustainable construction, so hopefully, the trend should catch on much sooner in India as well! ■

*Sharanam Rural Development Centre on the outskirts of Puducherry houses perhaps the largest vault made of unfired earth in the country. As opposed to traditional arched vaults made of fired brick, Trupti designed and built the vault using bespoke unfired bricks. She brought down the thickness of the arch - which in the normal case would have been 5 feet - to a mere 4 inches at the keystone! The vault which would have otherwise consumed 10,000 bags of cement was built using a mere 33 bags of cement for stabilising the soil mortar. It has been recognized as a model for sustainable development by the United Nations Environmental Programme. Trupti is the youngest Indian woman architect to achieve this feat. She was able to truly innovate and make sustainable building a reality with this and her other projects.*

Sharanam is built entirely out of unfired earth



"A LINEAR APPROACH TO CONSTRUCTION HAS RAW MATERIAL, CAPITAL AND LABOUR AS THE INPUT, AND BUILDINGS, HIGH CARBON EMISSIONS AND WASTE AS THE OUTPUT. BUT A CYCLICAL PROCESS ENSURES THAT THE WASTE OF ONE PROCESS BECOMES THE WEALTH OF ANOTHER"

## WHO THE AUROMA GROUP, PUDUCHERRY

Imagine a huge, vaulted, almost-paper-thin roof constructed without any support underneath it. At Sharanam Centre for Rural Development near Puducherry, Doshi used an innovative optimisation technology to build this roof with one of the heaviest materials—earth. What would otherwise be five feet thick and built with 10,000 bags of cement was optimised to be a mere 4 inches at the key stone, using only 33 bags of cement. It was featured on the cover of United Nations Environmental Programme report on sustainable building. >



## SDGs ADDRESSED BY TRUPTI DOSHI'S WORKS



## THREE PILLARS OF TRUPTI DOSHI'S WORK



AUROMA  
ARCHITECTURE



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Doshi



Auroma  
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