

# Symphony of the Bamboos

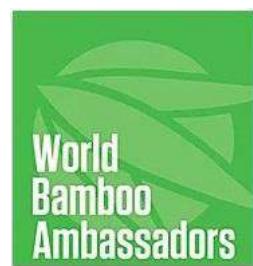
XI World Bamboo Congress, Xalapa, Mexico

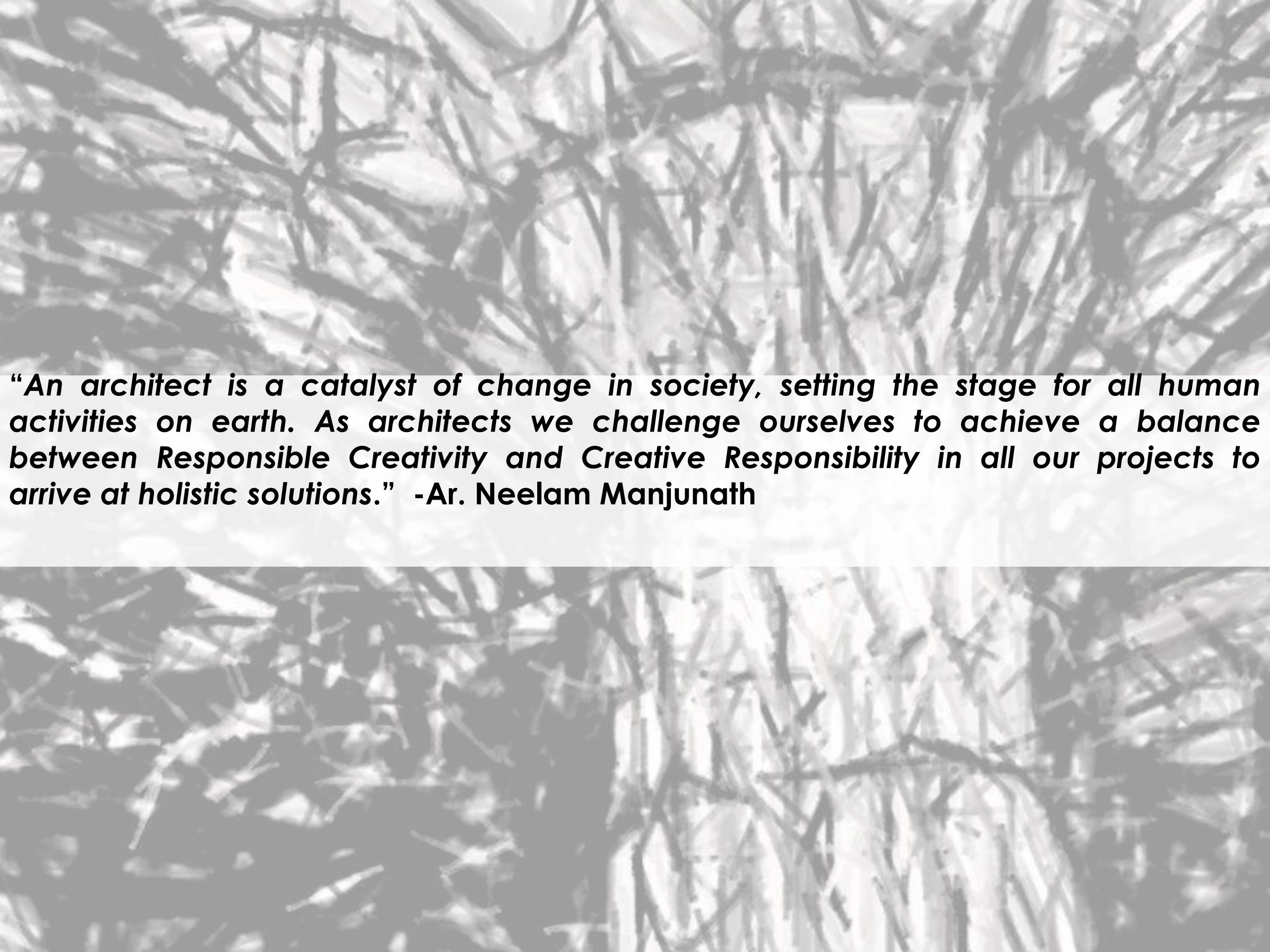
**Ar. Neelam Manjunath**

Proprietrix, Manasaram Architects, Bangalore, India,  
CEO, Founder and Managing Trustee, Center for Green Building Materials and Technology,  
Bangalore, India;

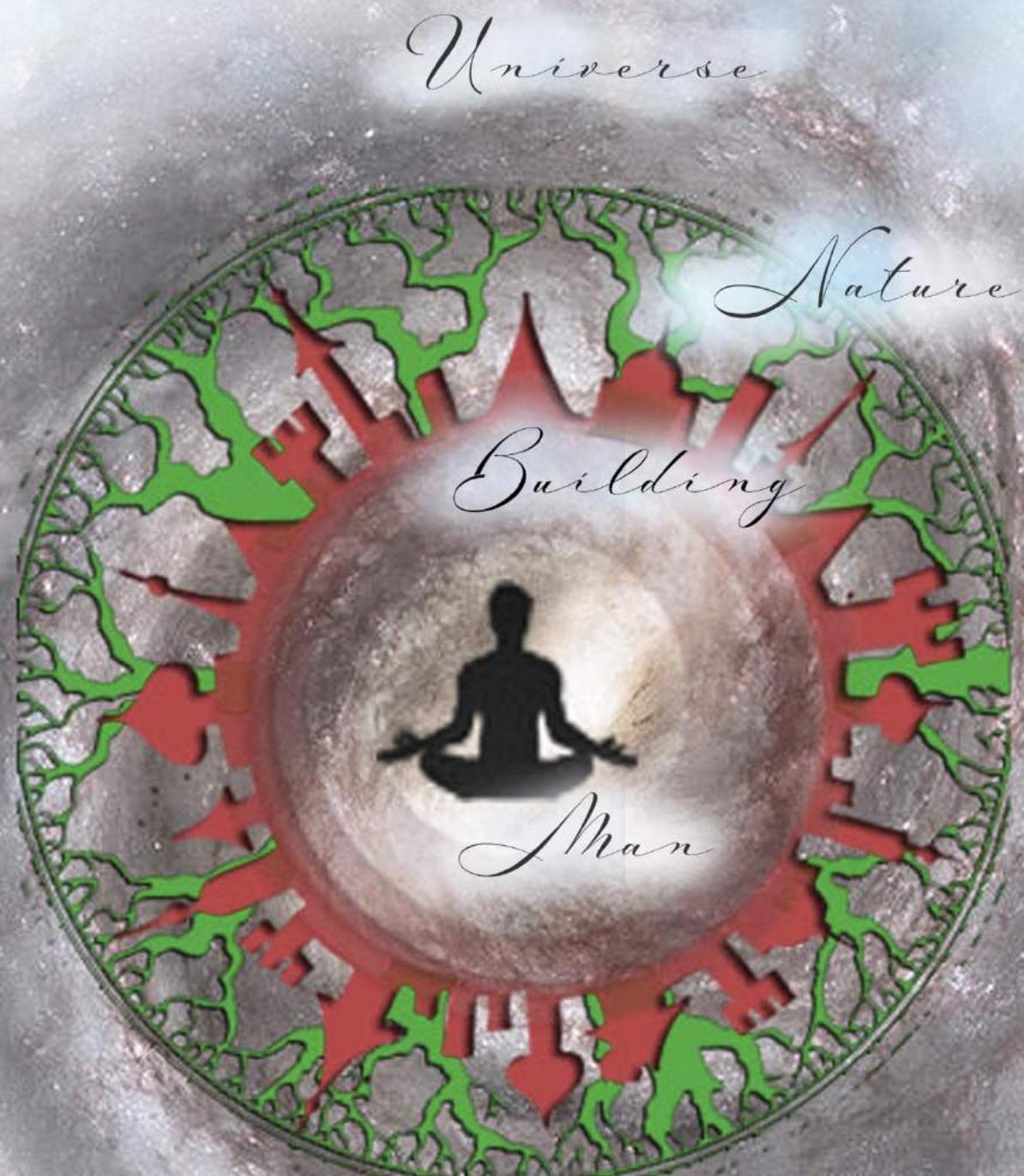
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World Bamboo Ambassador, WBO  
National Governing Council, Bamboo Society of India  
Member, INTACH

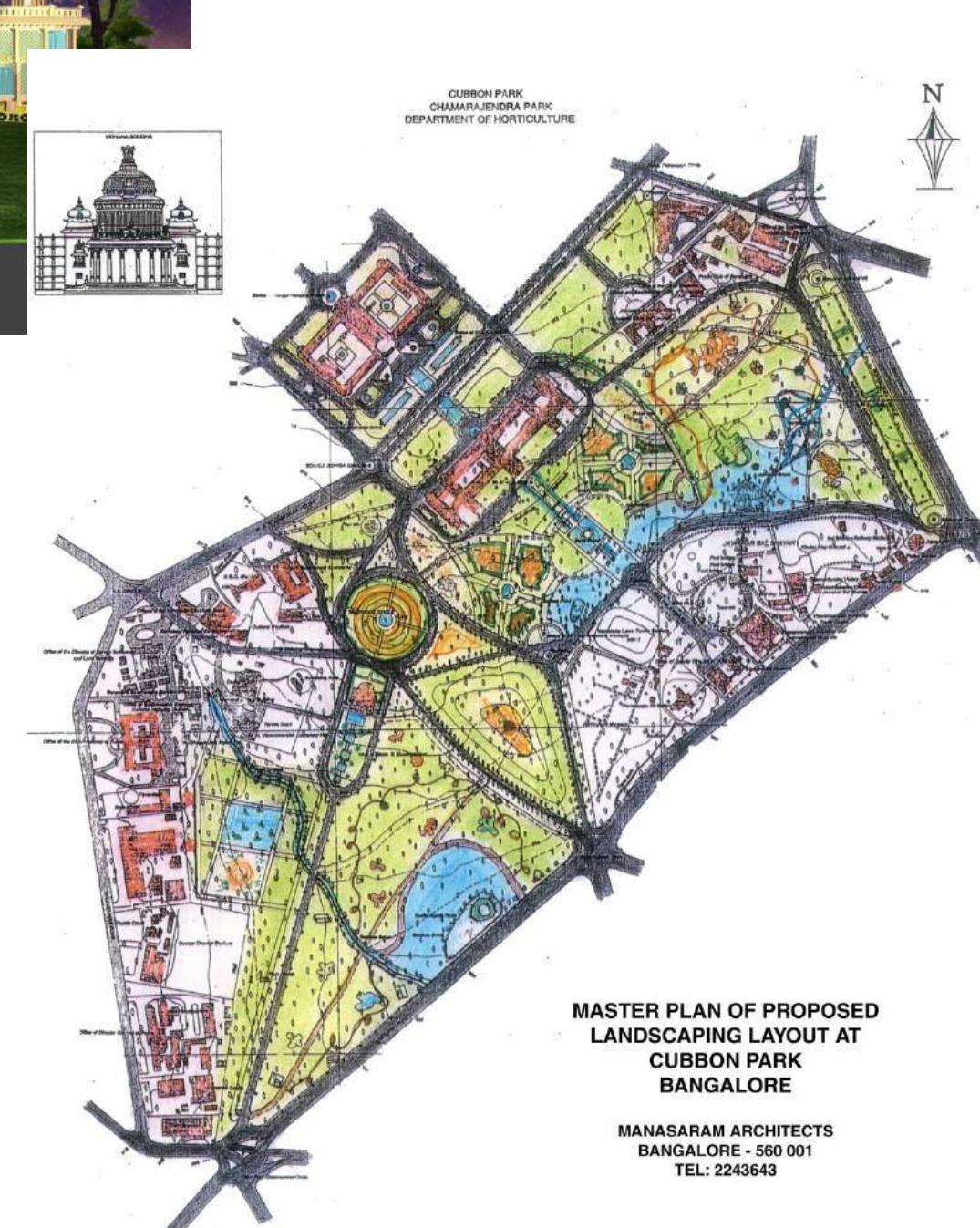




**“An architect is a catalyst of change in society, setting the stage for all human activities on earth. As architects we challenge ourselves to achieve a balance between Responsible Creativity and Creative Responsibility in all our projects to arrive at holistic solutions.” -Ar. Neelam Manjunath**



**What is Architecture?**

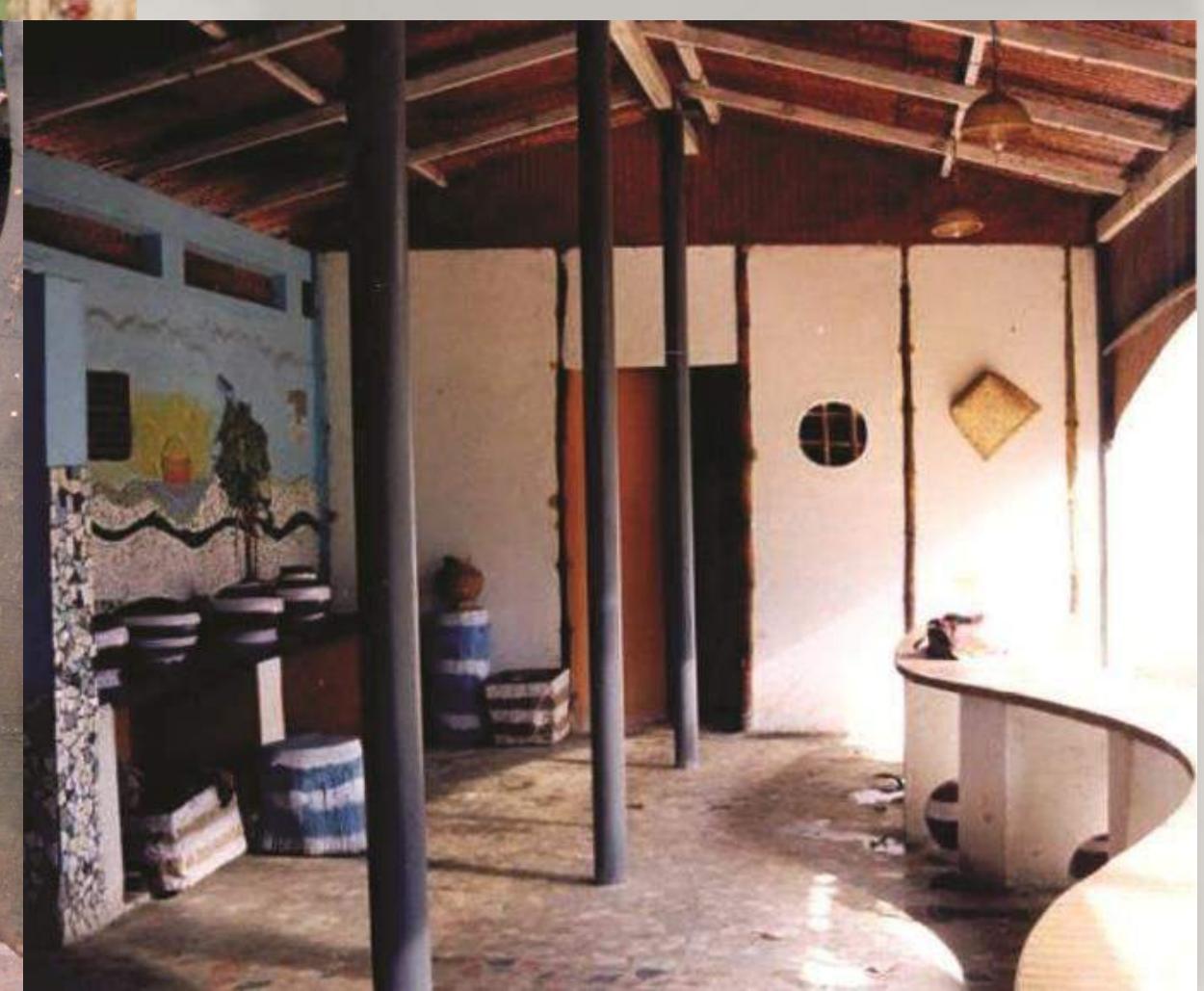


# FIRST ENCOUNTER

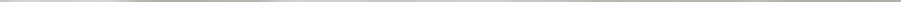
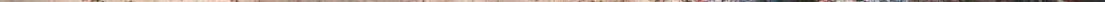


## PANTRY AT RAJ BHAVAN

- 60% of this project was built with recycled materials.
- Bamboo crete walls with cement plasters, carving openings for windows.
- Corrugated bamboo mat sheets BMCS were used for the roofing, and a fascia of 3mm bamboo mat board was installed to protect the structure.

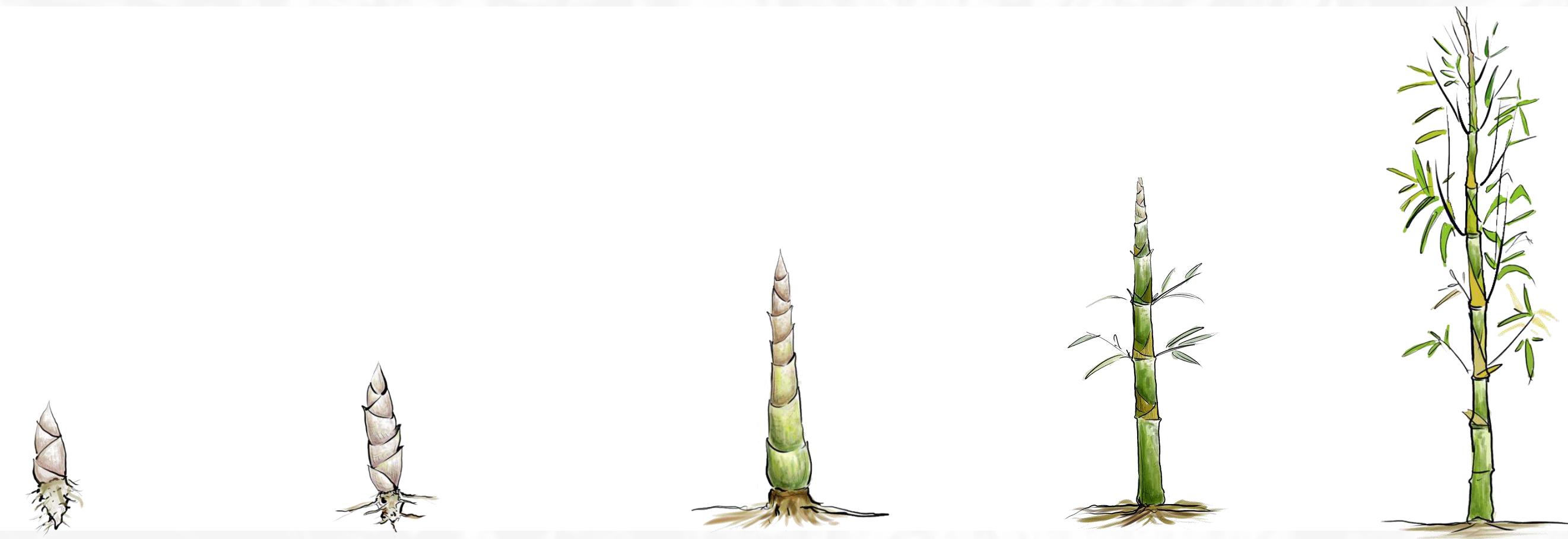


# EARLY PROJECTS



# The Sabbatical Years...

It has been over 19 years since we started working with bamboo in our projects and we've never looked back. Our journey has been tough and enduring but truly fruitful and rewarding. Through these years, we have prototyped a variety of building typologies with Bamboo, ranging from something as small as a low-cost bamboo toilet, to an urban proposal for a Metro Station, serving a wide spectrum of needs for all the population.



**“Symphony of the Bamboos”** – charts the journey and evolution of this humble **material in TIME & SPACE – from a Poor man’s timber**, associated with traditional bamboo communities with untapped potentials – to the Establishment of its **existence as a contemporary building material of global importance**. It celebrates the triumph of nature, unleashing the potential of natural materials, processes and our symbiotic relationship in conquering new frontiers in Sustainable Development.

# CGBMT-Center for Green Building Material and Technology, Bangalore, India







# ADITI CONSTRUCTIONS





la Biennale di Venezia

16. Mostra  
Internazionale  
di Architettura

European  
Cultural  
Centre

TIME  
SPACE  
EXISTENCE

LA BIENNALE DI VENEZIA 2016  
Palazzo Mora · Palazzo Bembo · Palazzo Rossini

...it is no wonder that native craftsmen soon found such a workable material a broad field for cultivating their genius. Because of its great tensile strength, its capacity for splitting straight, its hardness, its peculiar cross section and the ease with which it can be grown - a combination of useful traits found together in no other plant - bamboo is one of those providential developments in nature which, like the horse, the cow, wheat and cotton, have been indirectly responsible for man's own evolution."

(Porterfield 1938:181-3)

dh/dg

Kalpavruksha  
- The Wish  
Tree



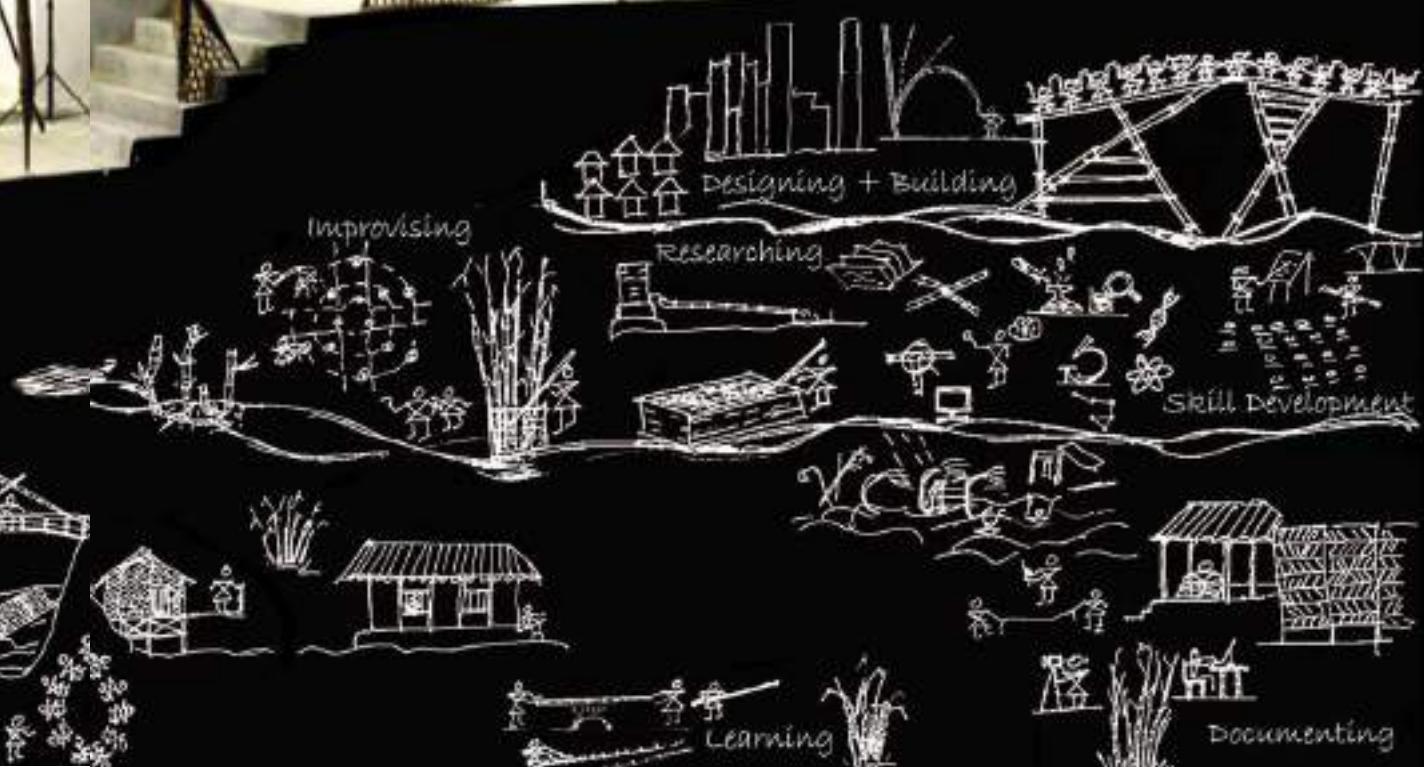
Bamboo Communities



Listening



Bamboo unleashed!

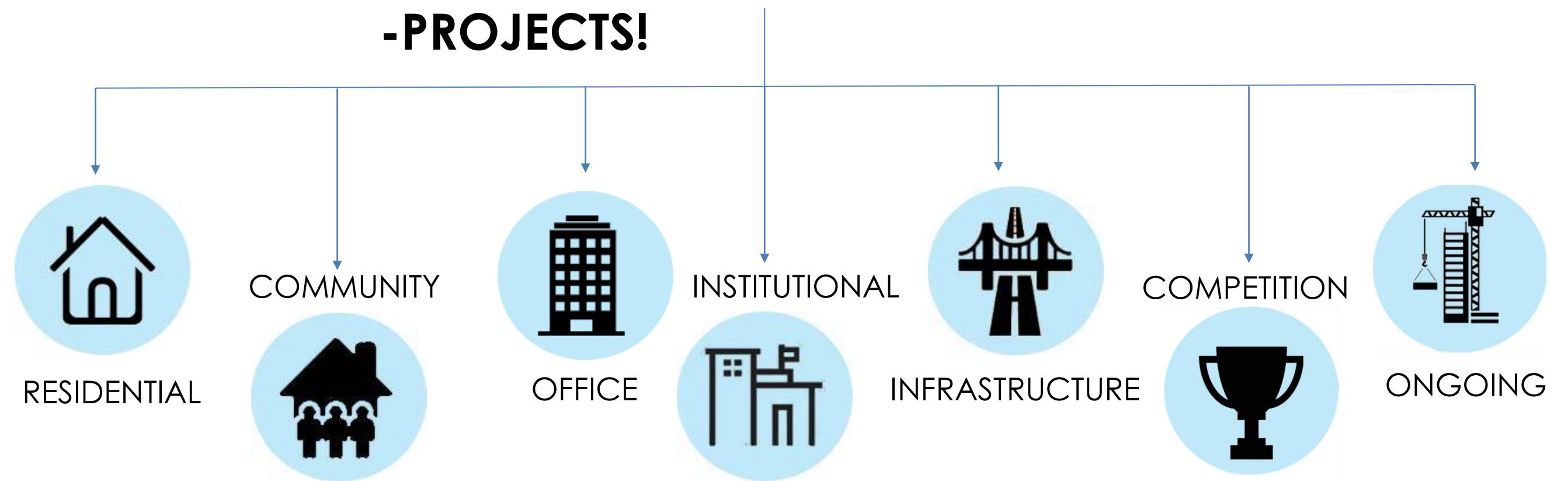


Symphony of the  
Bamboos!





# WINDS OF CHANGE -PROJECTS!



## PROJECTS



OFFICE



INSTITUTIONAL



INFRASTRUCTURE



COMPETITION



# HOUSE OF FIVE ELEMENTS

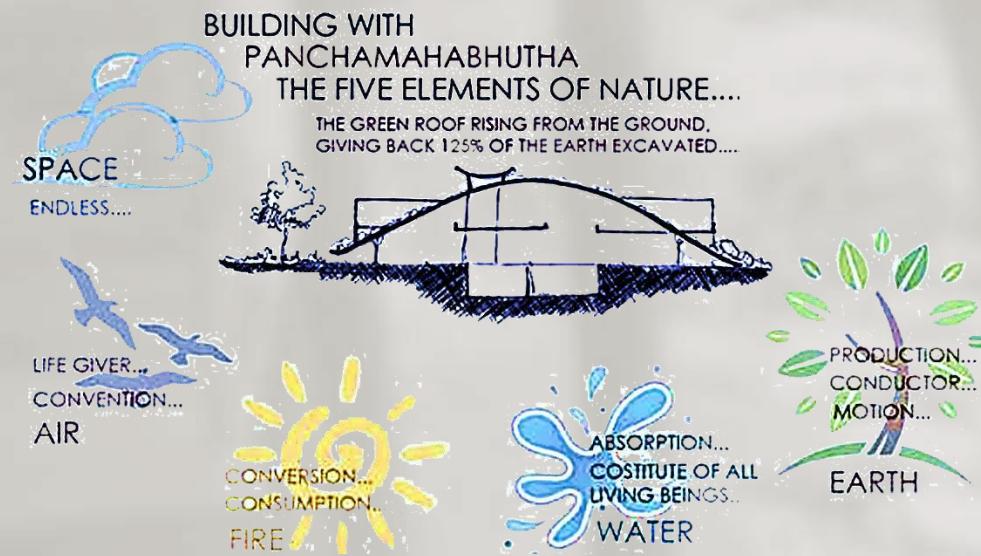
# HOUSE OF FIVE ELEMENTS



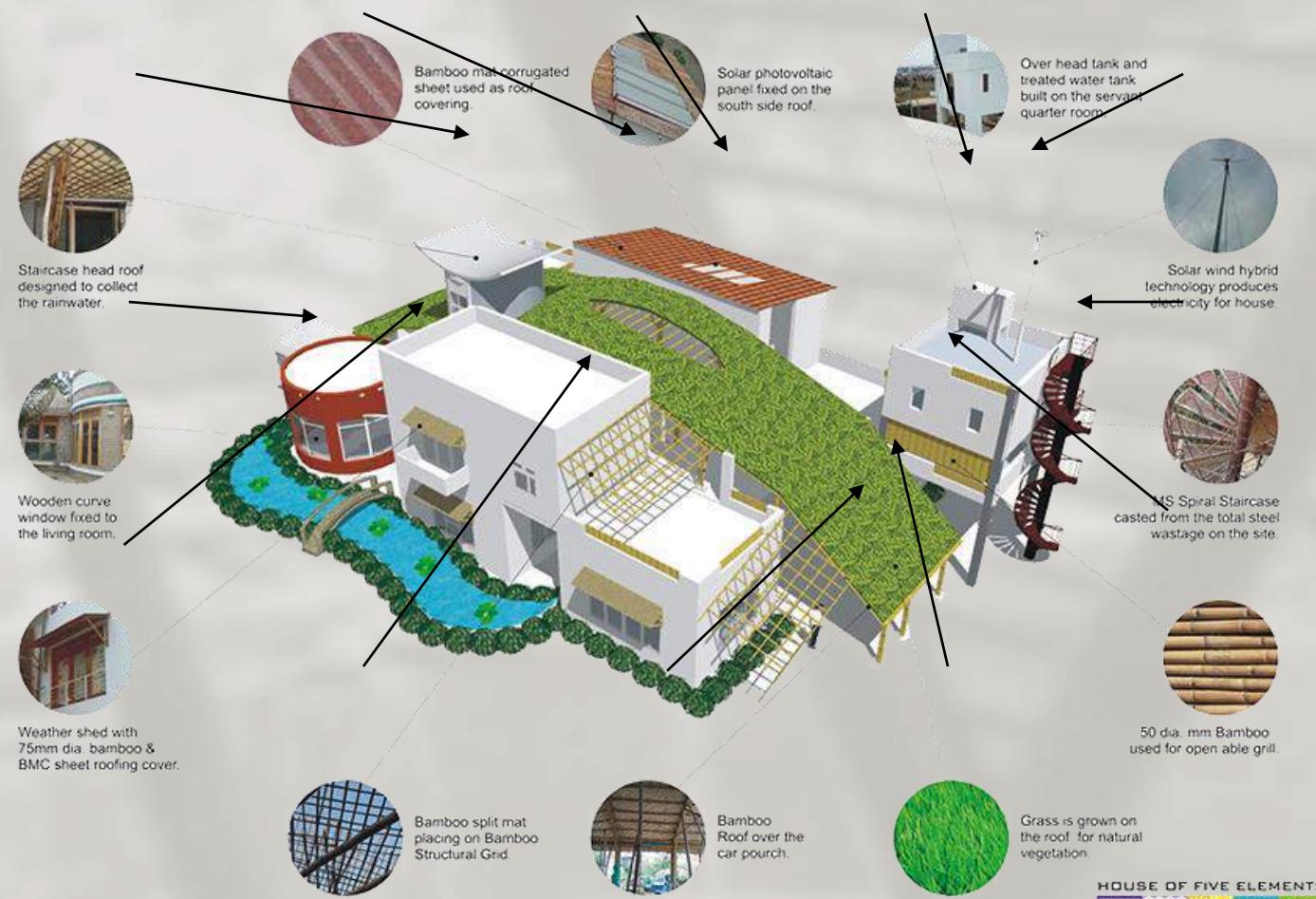
**Client:** Ms. Neelam Manjunath

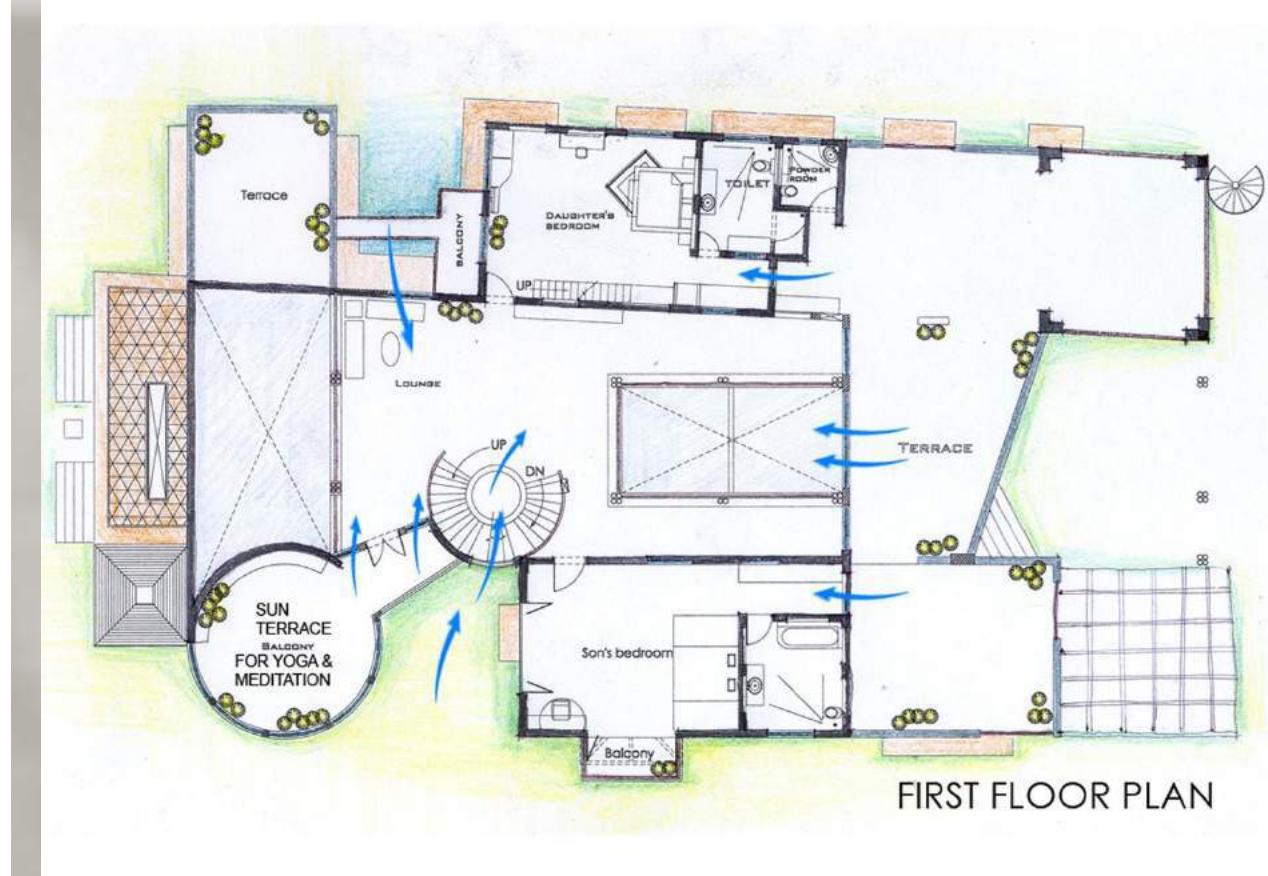
**Built-up area:** 1118 m<sup>2</sup> / 12,034 ft<sup>2</sup>

**Year of completion:** November 2009

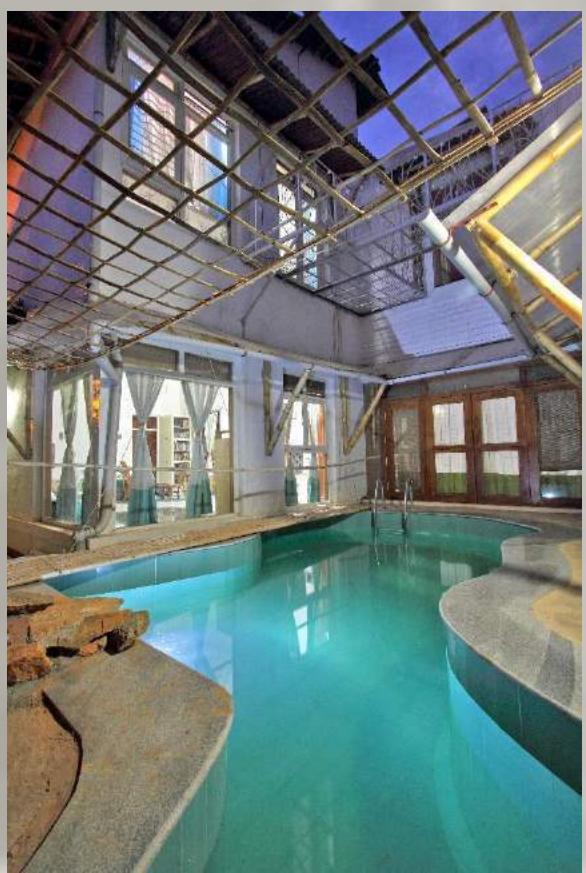


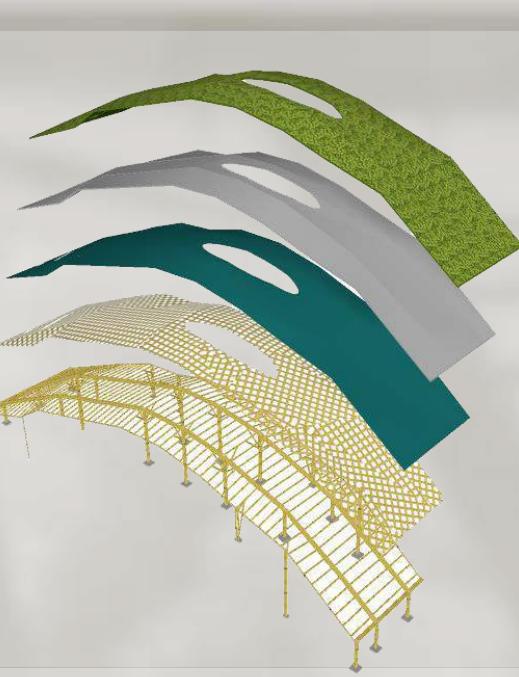
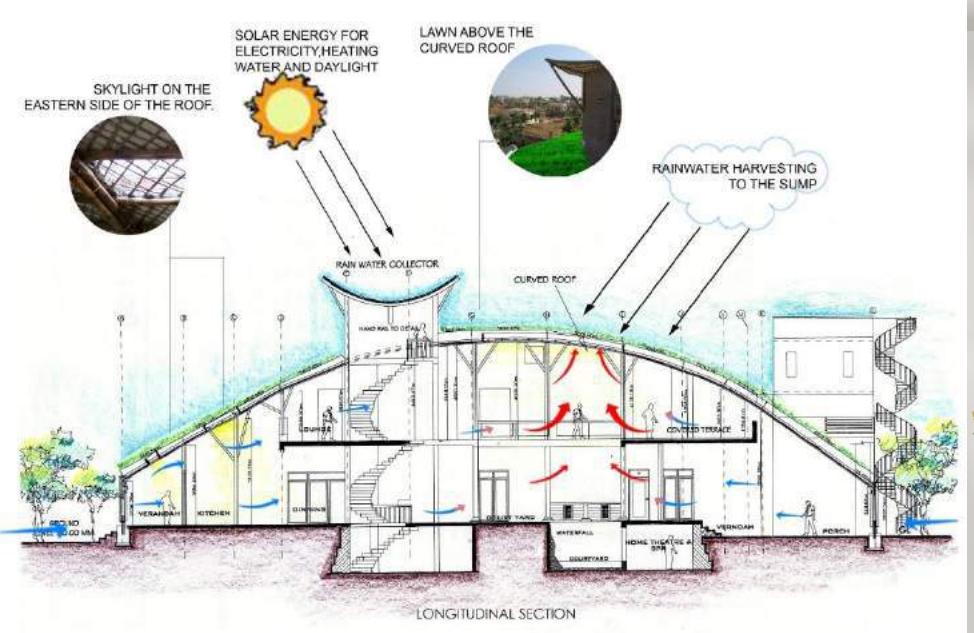
In House of Five Elements, one can feel the presence of the five elements of nature at every point : water, air, earth, light, greenery.



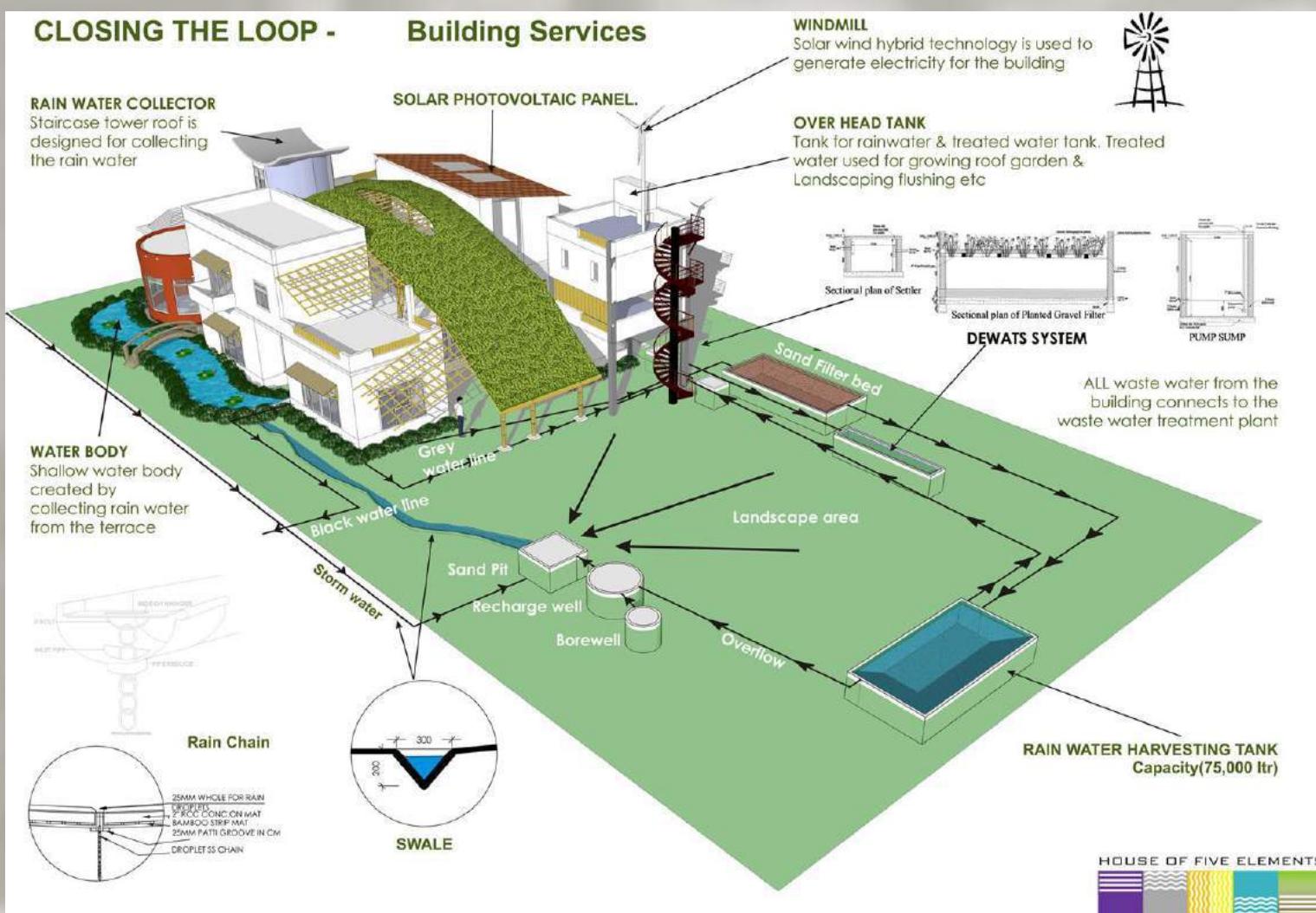


The spaces in this house flow and merge with each other, with the open to sky courtyard with a waterbody, open kitchen and dining with a double height. There are three bedrooms and a drawing room, around the courtyard, which helps in cross ventilation through Venturi Effect.





One of the roofs is a 3500 sq ft double curve roof with a span of 8.5 m-10 m. It covers the core area of the house, from east to west, with verandahs on both sides, and a courtyard in between.



The house is a zero energy development with closed-loop systems for building materials, processes, and technologies — just like in nature.





Bamboo and its derivatives were also used for doors, flooring, bridge, roofing, ventilators, pergolas etc.



## PROJECTS



# BAMBOO SYMPHONY

# BAMBOO SYMPHONY

**Design Team, location:** Manasaram Architects, Bangalore.

**Client:** Manasaram Architects

**Built-up area:** 210 m<sup>2</sup> / 2260 ft<sup>2</sup>

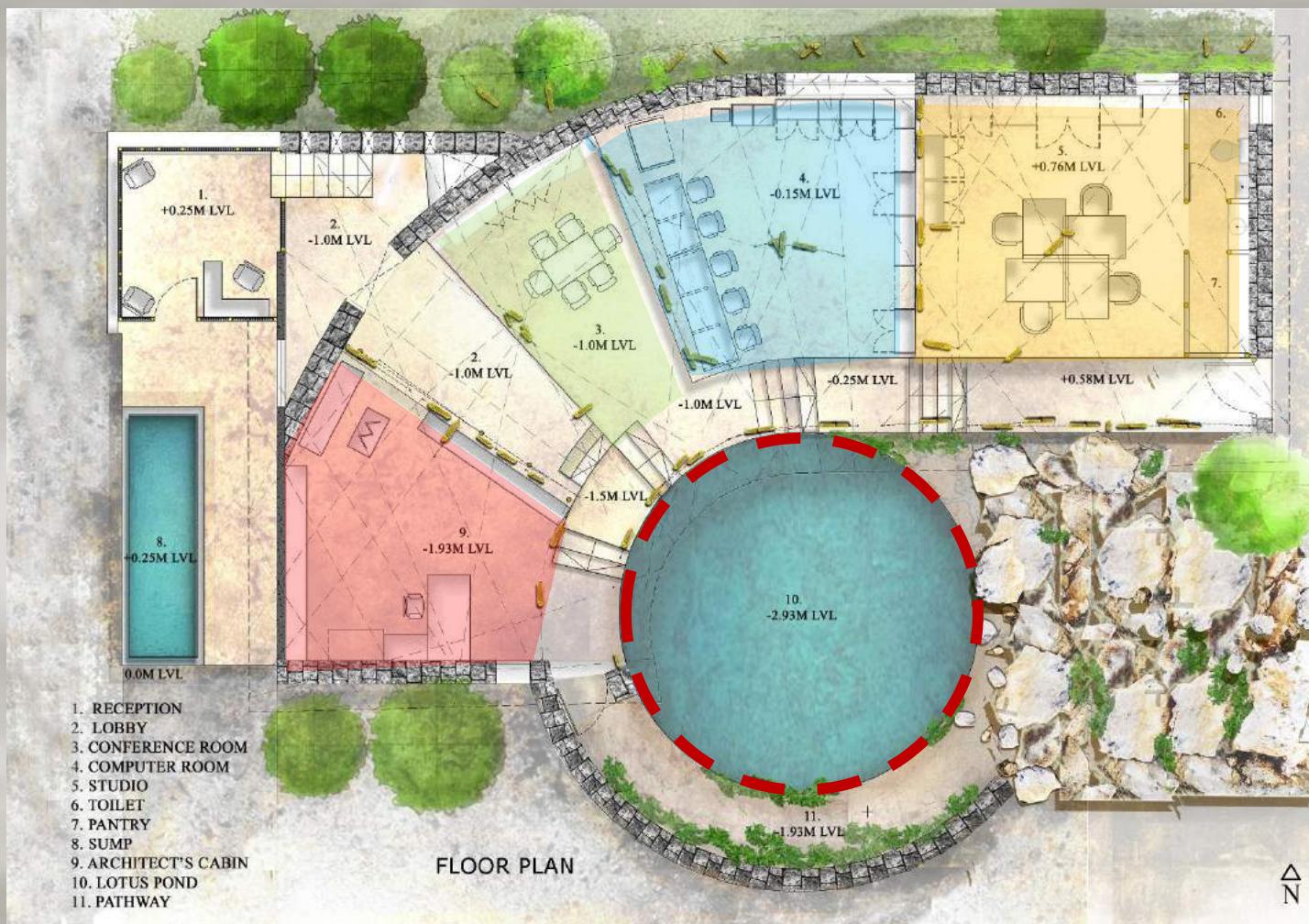
**Year of completion:** 2010



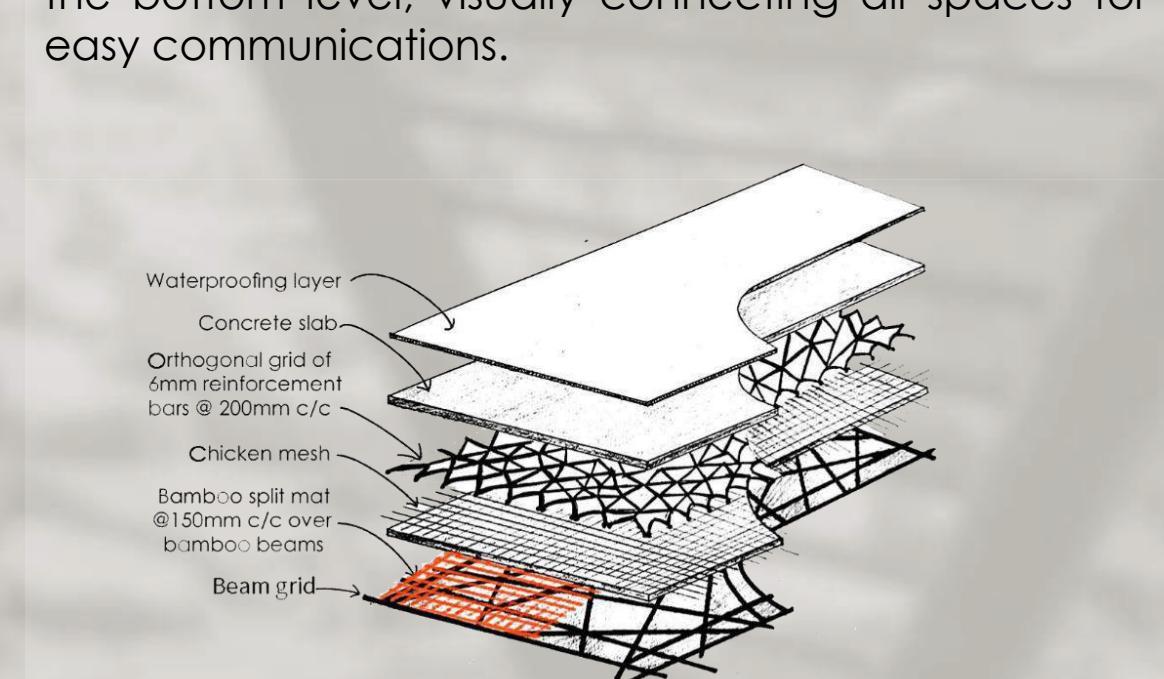
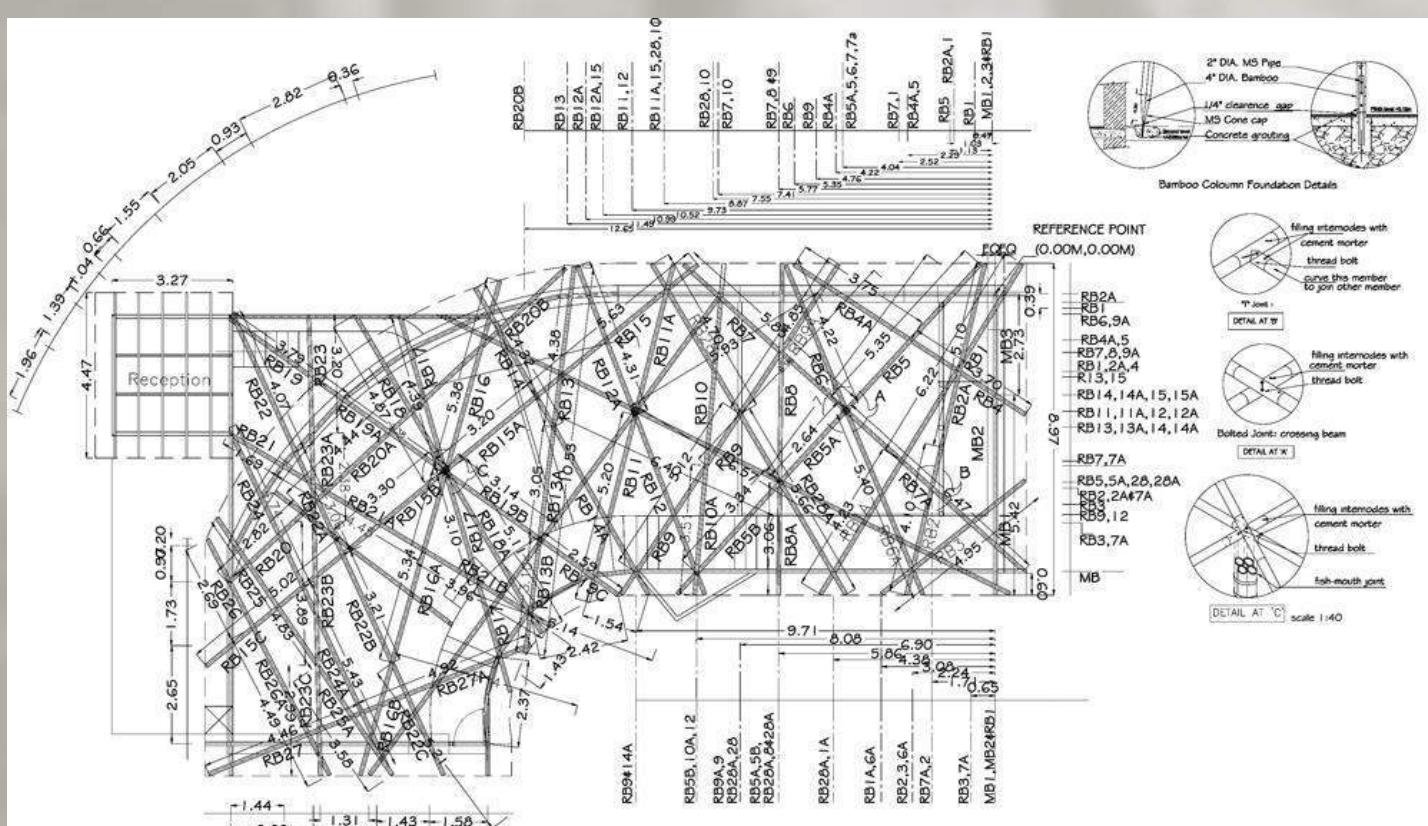
Our office had to embody all our design philosophies along with other requirements of space and services, to serve as an example of our professional practice both existing and in the future. We chose bamboo as the main material for our building and called it **Bamboo Symphony**.







With regards to space planning, the office has an open plan with four split levels, wrapped around a central lotus pool with the Architects' cabin sitting at the bottom level, visually connecting all spaces for easy communications.



The roof was allowed to define its own shape as per the flow of the forces – naturally, like a fabric assuming its shape. These structures are highly efficient with minimal energy and material use.



The design showcases the inherent strength of a single bamboo culm, taking inspiration from age-old traditional fishing platforms in India – truly synergetic structures, harmoniously defining the spaces, and creating a feel of extreme lightness.



The RWH pond is landscaped with locally available water plants, enhancing the microclimate and humidity, planned to maximize the durability of the Bamboo members used in the building.



# AWARDS

- **Red dot Concept design** for “FlexiSanShell” awards(2016-17)  
Shortlisted for project “Bamboo Symphony”.
- **ARCASIA Awards for Architecture 2017 GOLD (at Jaipur)**  
Sustainable project category for “Bamboo Symphony”
- **Rethinking the future awards: Category – Office building (Built) (2017)**  
Certificate of 1<sup>st</sup> award for Bamboo Symphony.
- **Aga Khan Award for Architecture: Best Designed Sustainable Project Award(2013)**  
Nomination
- **ArchiDesign Awards: Best Designed Sustainable Project Award(2013)**  
Winner
- **World Architecture Community Award 20+10+X- 12th Cycle(2012)**  
Selected through the Voting of Honorary Members
- **Lafarge Invention Awards (2011)**  
3rd prize- innovative structural system
- **World Architecture Festival Awards:(2011)**  
Shortlisted
- **Lafarge Invention awards (2011)**  
for innovation in construction system with concrete

PROJECTS

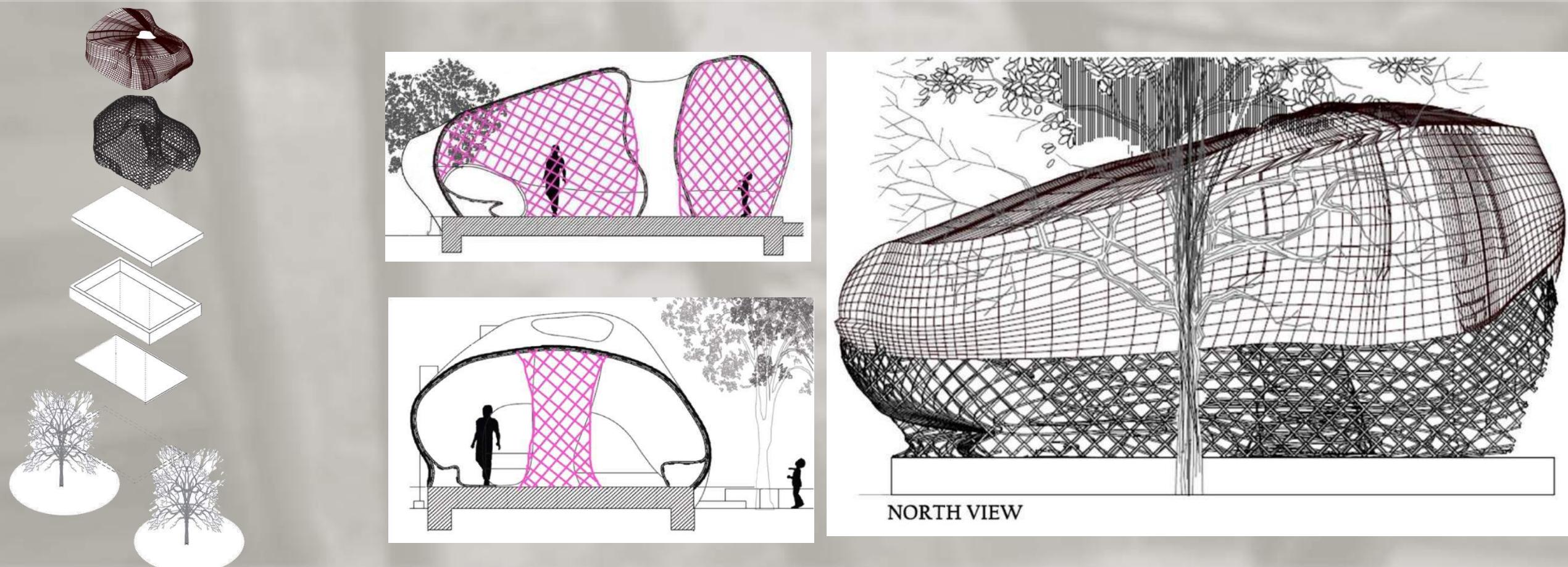


# COCOON

**Design Team, location:** CGBMT, Manasaram Architects, Aarhus University, Denmark, BCCHO Architects, CARE College of Architecture, Trichy  
**Client:** Krishi Vigyan Kendra  
**Built-up area:** 37 m<sup>2</sup> / 400 ft<sup>2</sup>  
**Year of completion:** 2014



Cocoon is a space for teaching and exhibiting projects to visitors of Krishi Vigyan Kendra, Trichy. The aim is also to create a comfortable and welcoming space for people to sit down, relax and talk to other people.





The main structure is primarily made of a light bamboo structure with bamboo shingles sheltering the space.



The outdoor space and furnishing is made of granite which connects to the foundation and anchors the pavilion into the landscape.



Done as a workshop with students of C.A.R.E. College, Trichy and Aarhus School of Architecture, Denmark.

# AWARDS

- **IIA Top 30 architects in India shortlisting-**  
Nominated
- **The Merit list(2015-16) cycle –**  
Citation for exceptional ideas in contemporary Indian architecture
- **Rethinking the future awards: Category – Cultural (Built)**  
Certificate of 1st award for Cocoon. (2017)
- Nominated for **the President's medal by RIBA** in student's category

PROJECTS



RESIDENTIAL



COMMUNITY



OFFICE

INSTITUTIONAL



INFRASTRUCTURE

# CRECHE, DEI, Agra, India

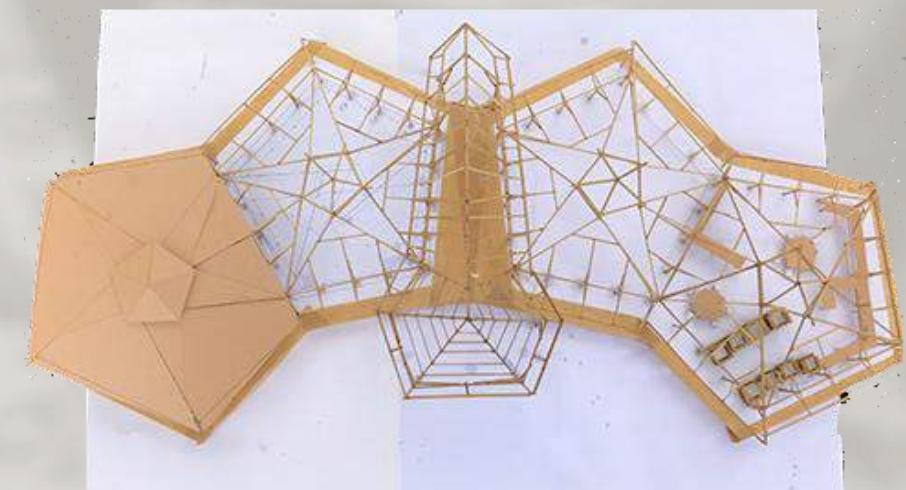
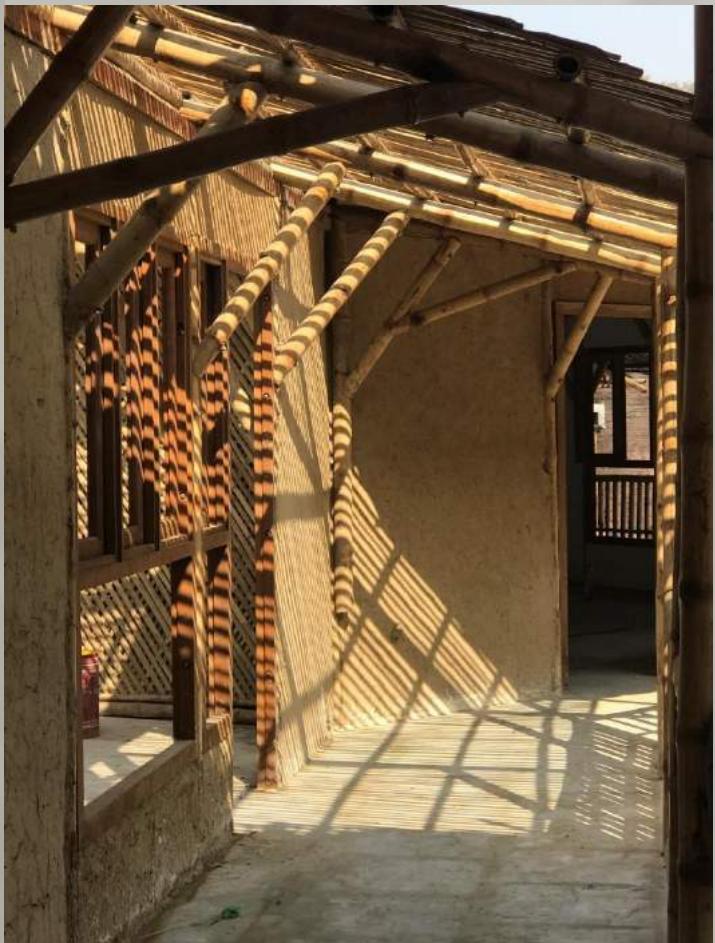


# CRECHE, AGRA

**Design Team:** CGBMT, Manasaram Architects, Bangalore.; **Client:** DEI (Deemed University), Agra **Built-up area:** 607 m<sup>2</sup> / 6540 ft<sup>2</sup>; **Year of completion:** 2018



The building, constructed primarily with bamboo, consists of four interconnected pentagonal classrooms, along with an entrance alley.



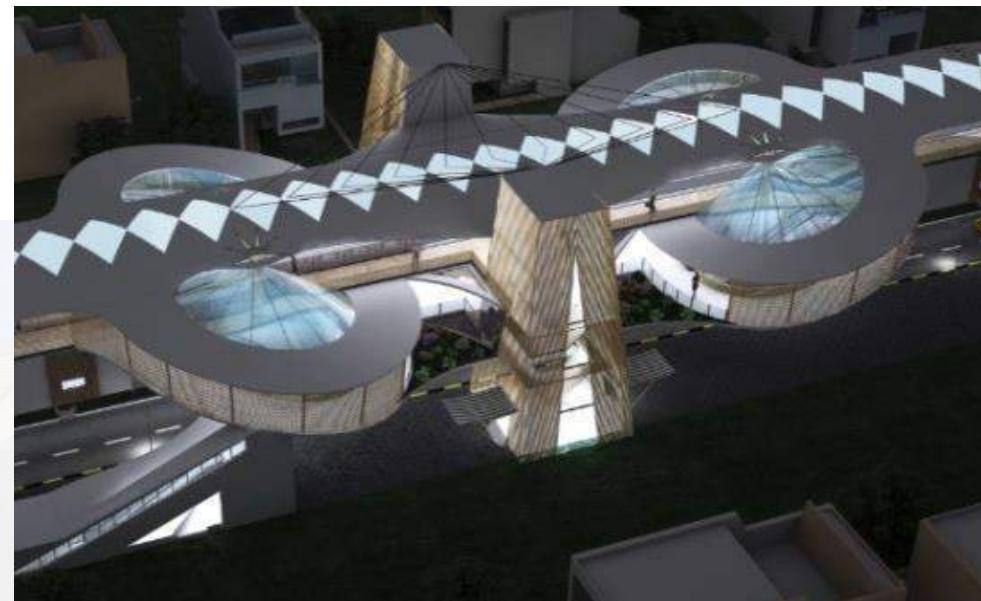
Local artisans, students, faculty members, and Dayalbagh's Work Department were part of the execution team under the principal architect's guidance.



## PROJECTS



# METRO STATION. Bangalore



# METRO STATION

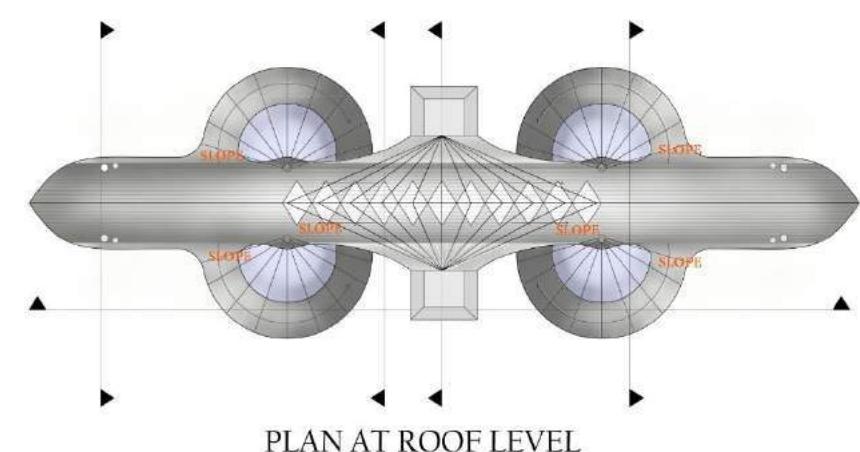
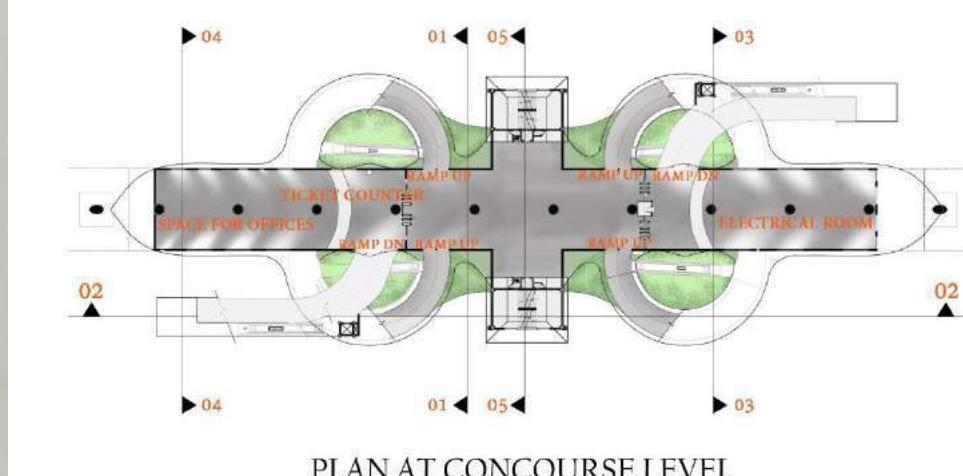
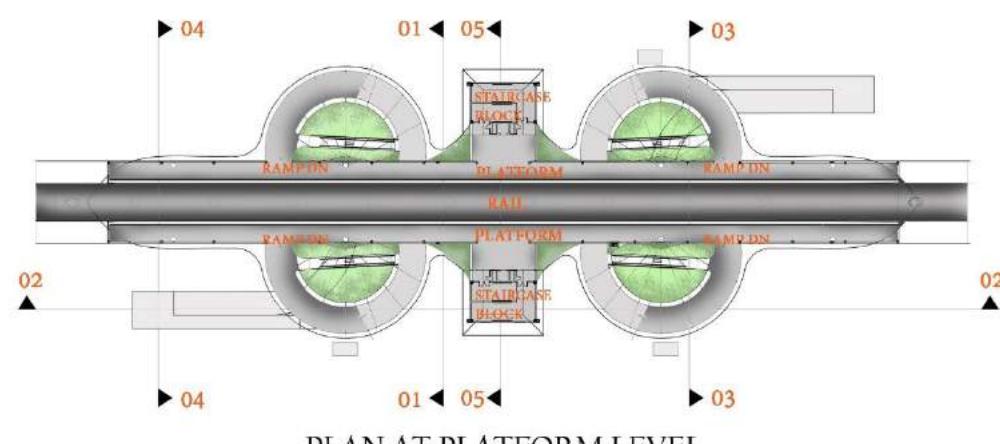
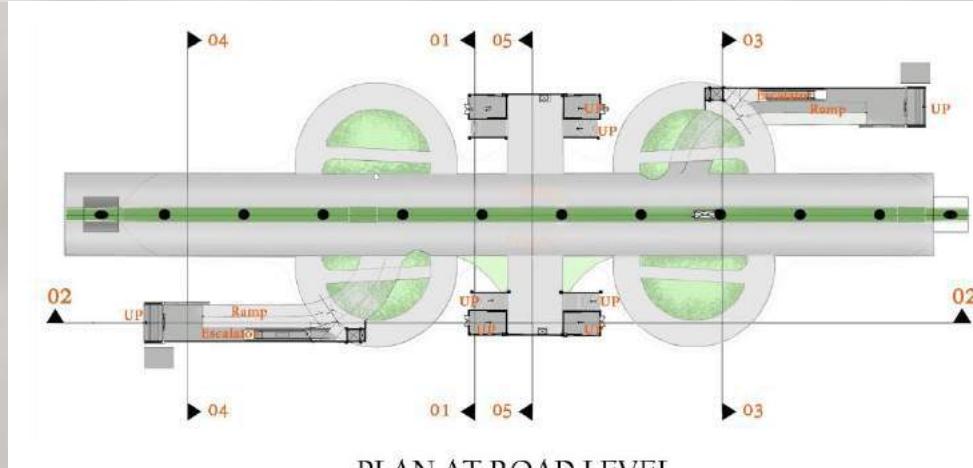
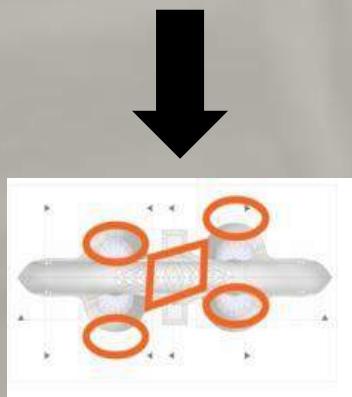
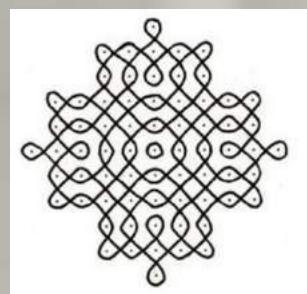


**Design Team, location:** Manasaram

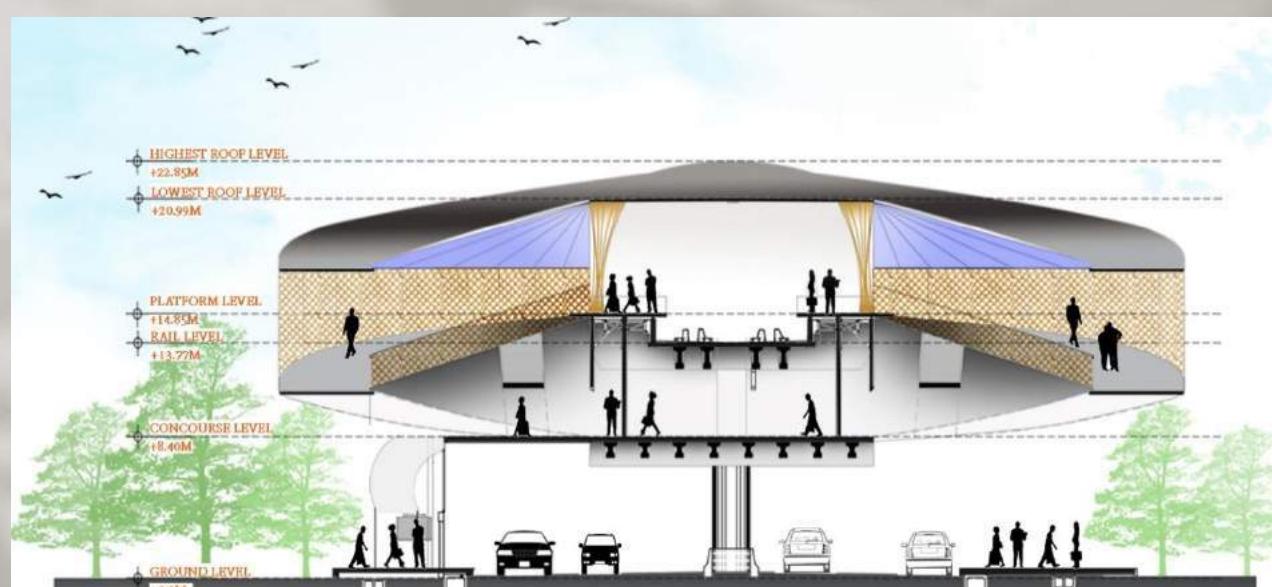
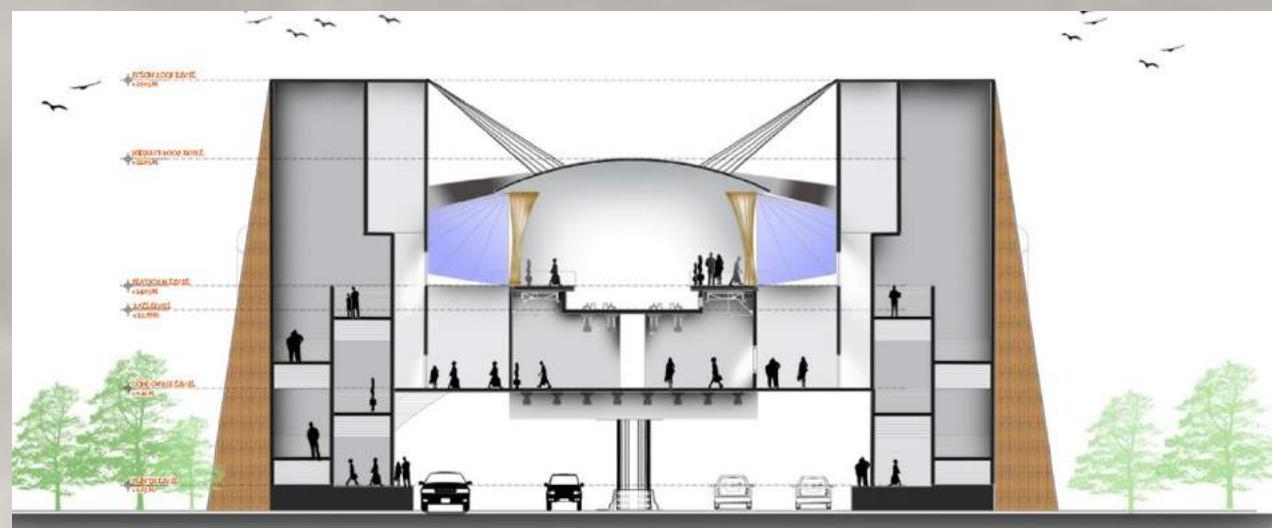
Architects, Bangalore.

**Client:** Bangalore metro Rail Corporation Ltd.

The form of the metro station has been derived from the logo of the NAMMA Metro, Bangalore and the structure is designed as a lattice grid shell structure derived from the weaving techniques for Bamboo.



Bamboo plays a vital role in the project, being used for the platforms' roofs, jaalis, shell roof, columns, fixtures, and furniture, along with debris from underground mining.



Apart from its primary purpose, i.e. enabling ease of travel, the stations also promoted connection between people with its informal spaces designed for socialization.

# AWARDS

- **IIA Top 30 architects in India shortlisting-**  
Nominated
- **Rethinking the future awards:**  
Category – Transportation terminal (Concept) Certificate of 2nd award

## PROJECTS



## HOUSE OF HUNGARIAN MUSIC, BUDAPEST



# HOUSE OF HUNGARIAN MUSIC

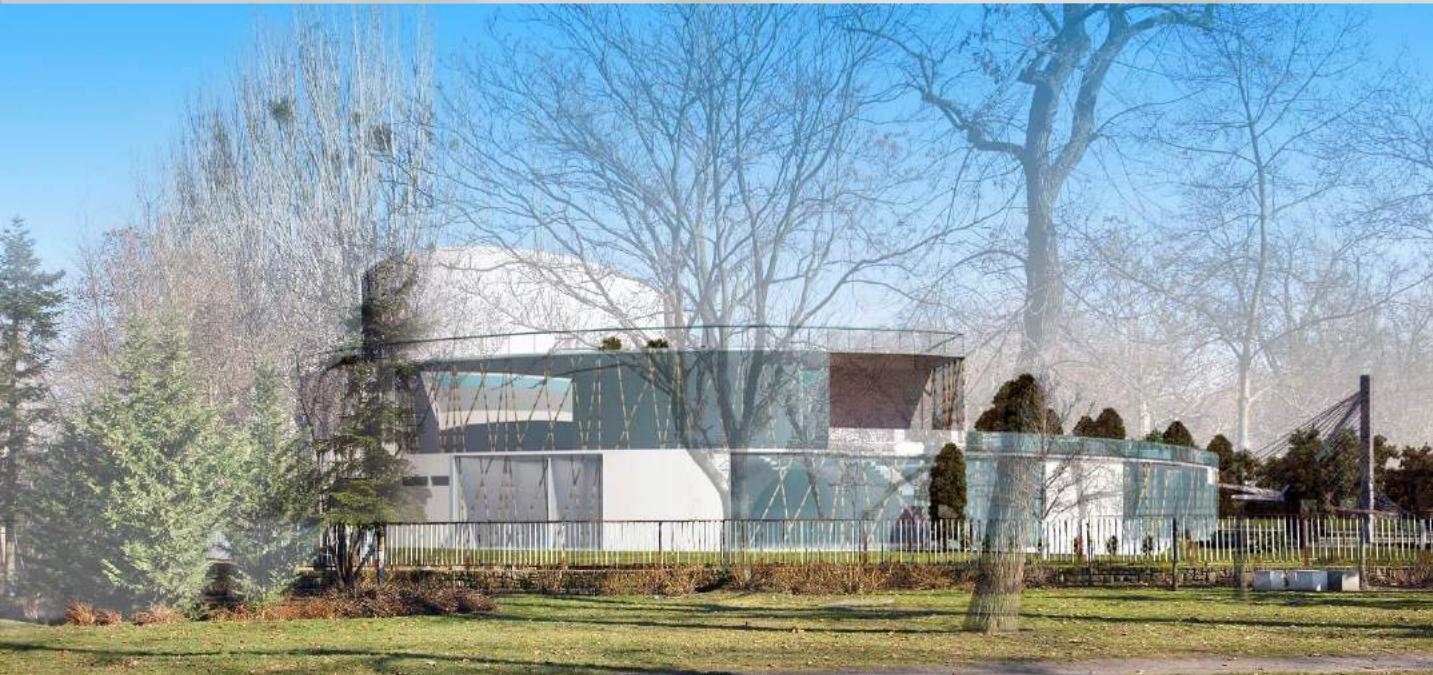
**Name of the architectural firm and Design Team,**

**location:** Manasaram Architects, BUDAPEST

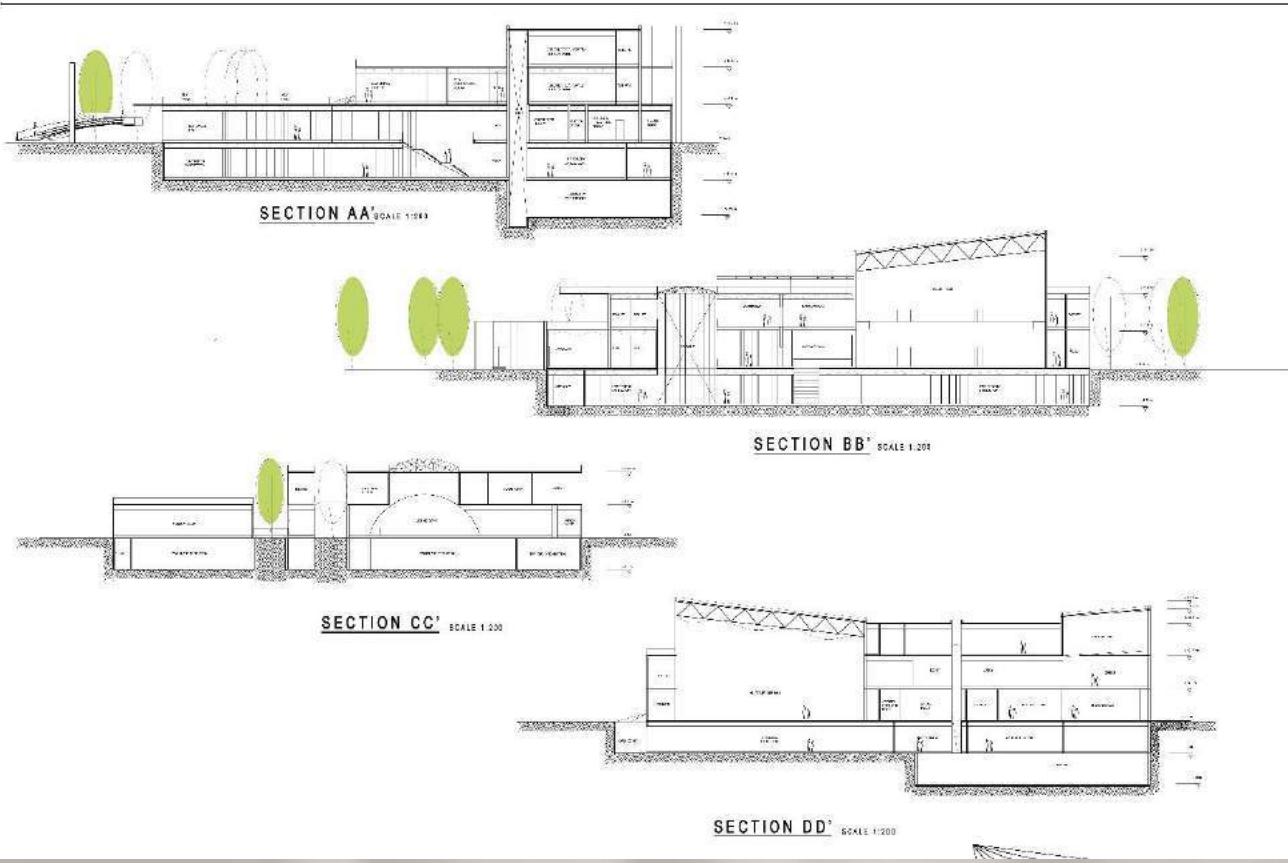
**Client:** BUDAPEST



The site for the House of Hungarian Music was home to several buildings that had to be demolished for this project.



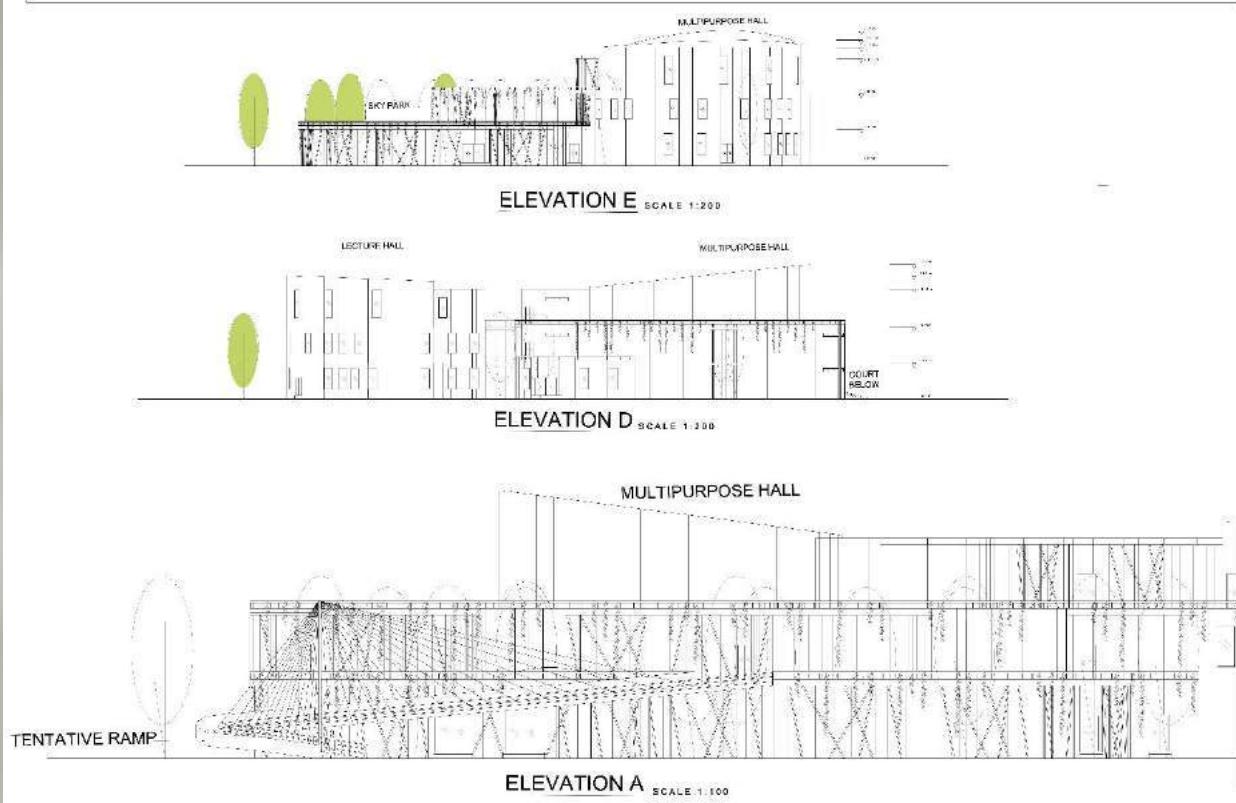
The building, like music itself, was non-invasive. It was designed around the fully-grown trees of the park and resulted vast courtyards.



## Innovation

### New Technology, Process and practices

a	Debris	New age construction material. All the building debris used to make the retaining wall of the basement- Reuse
b	Light courts	Series of courts in basement. Natural lighting and ventilation
c	Ductal	Concrete wall around the earthfill with roots of existing trees.



Bamboo was used interactively within the architecture, which allowed the visitors themselves to create music with the material!



## PROJECTS

- **SHILPARAMAM**
- **ADITI GREENSCAPES**
- **AVILALA ECOLOGICAL PARK**
- **BAMBOO BRIDGES FOR DDA**
- **DAYALBAGH CONFERENCE HALL**
- **CGBMT HEADQUARTERS**
- **ANANYA HOMES**
- **VISHNUDHAAAM TEMPLE**



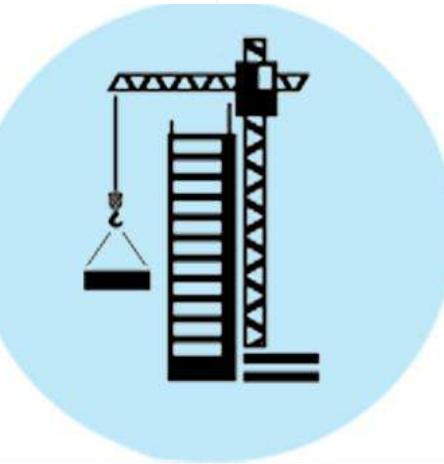
RESIDENTIAL



INSTITUTIONAL

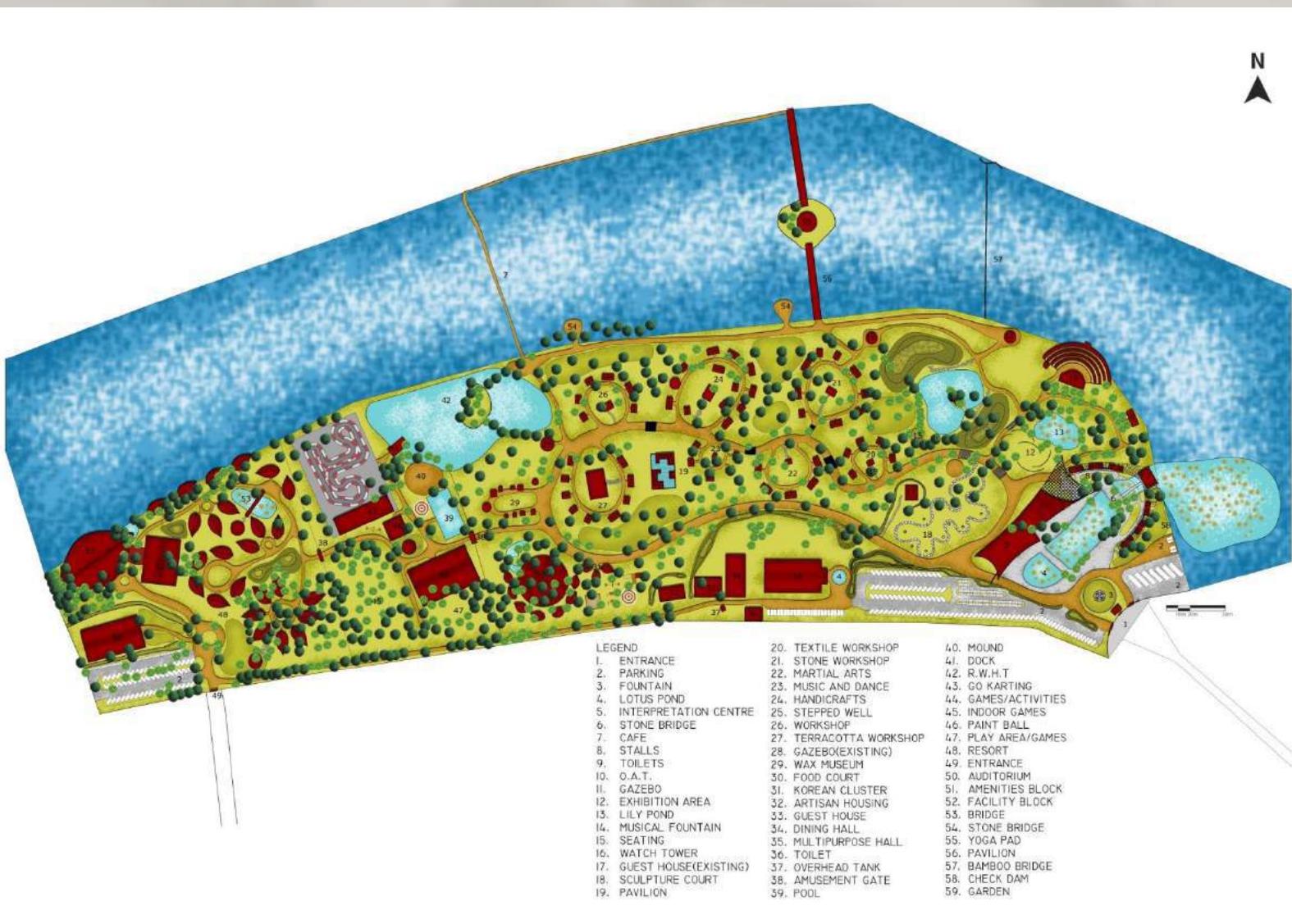


INFRASTRUCTURE



ONGOING

# SHILPARAMAM



Another one of our current large-scale is Shilparamam, an 83 acre piece of land for which is being developed as a sustainable 1,92,000 sq ft village based on arts and crafts for the Andhra Pradesh Government.



# E5-ADITI GREENSCAPES



A notable project in this endeavour is the E5 Aditi greenscapes project — a 4.15 acre residential development aimed at creating a sustainable living typology in an urban setting.

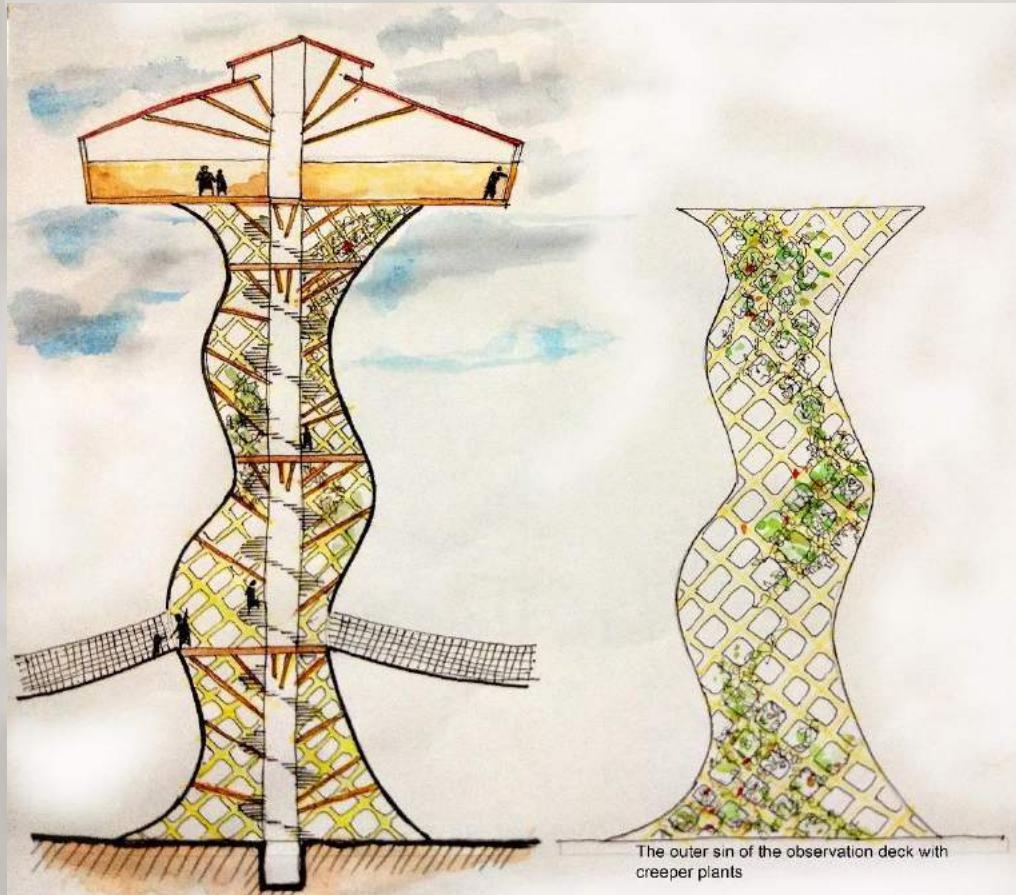
This project has already been awarded an IGBC Green Homes Platinum Pre-Certification, with maximum credits achieved in this category across the country so far, and the execution has been initiated.



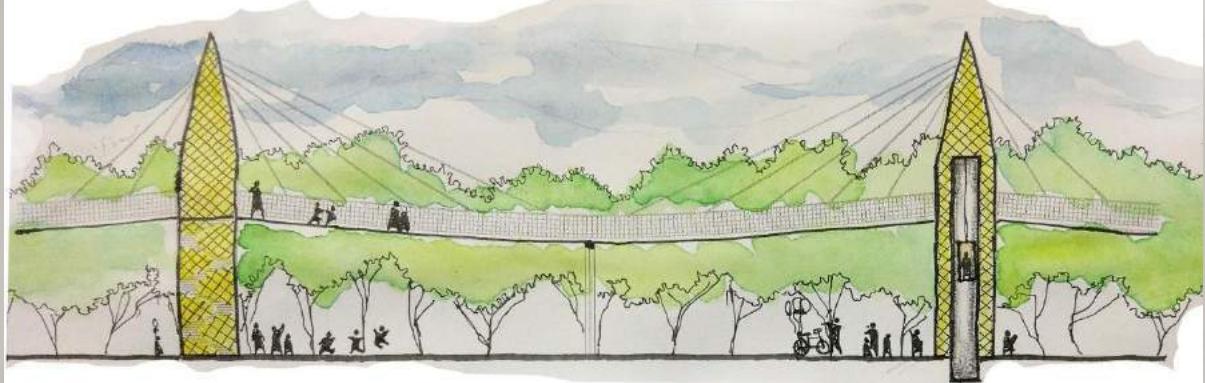
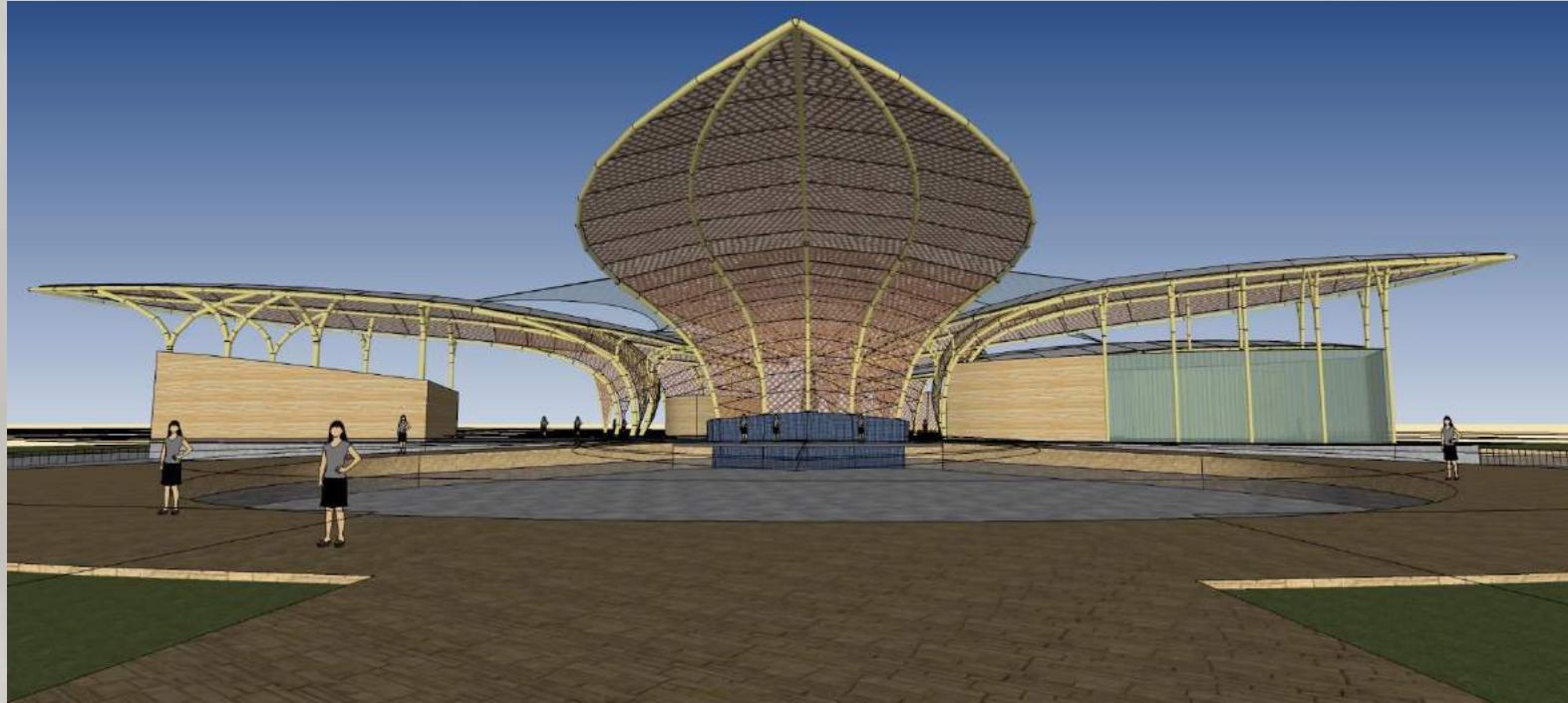
# AWARDS

- **IIA Top 30 architects in India shortlisting-**  
Nominated
- **Rethinking the future awards:**  
Category – Housing(Concept) Certificate of 2nd award
- a **IGBC Green Homes Platinum Pre-Certification**, with maximum credits achieved

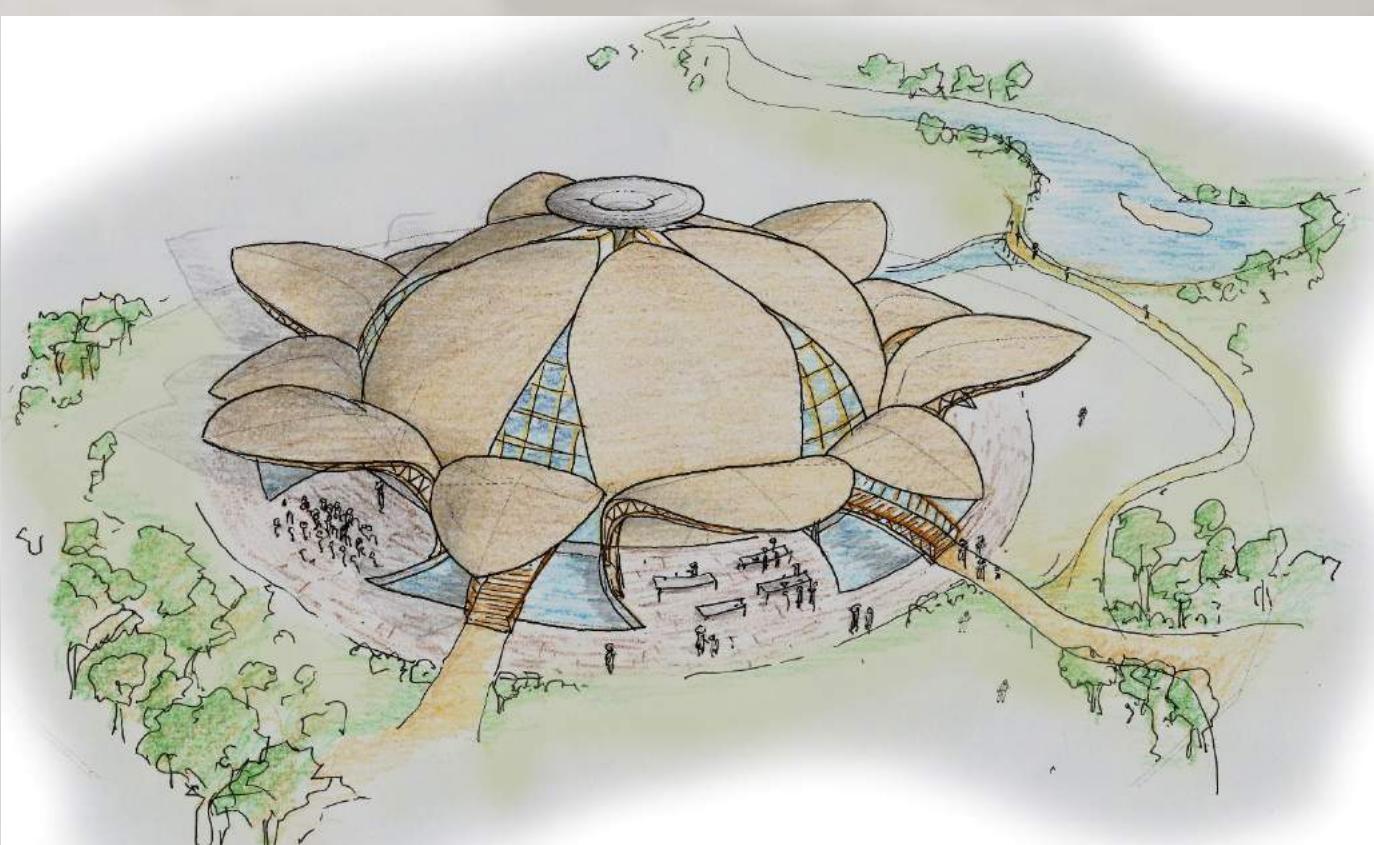
# AVILALA ECOLOGICAL PARK



The project aims to revive 150 acres of land, which will incorporate with clusters of shell structures in bamboo

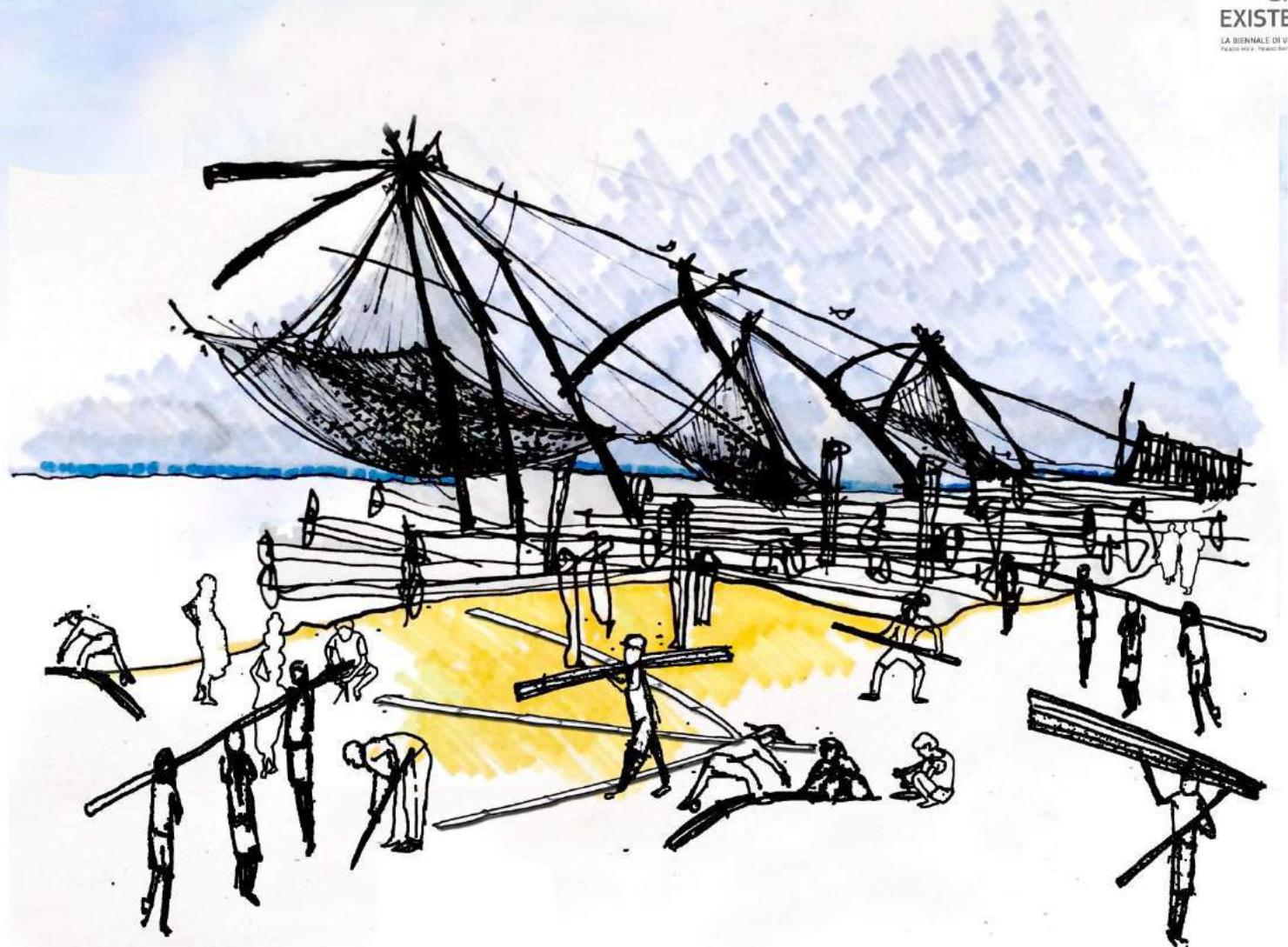


Once the home of a stunning water body, this piece of land is part of an ecological reconstruction process.



Talk by Ar. Neelam Manjunath  
25th November 2016

## *'Symphony of the Bamboos'*



"An architect is a catalyst of change in society, setting the stage for all human activities on earth. As architects we challenge ourselves to achieve a balance between Responsible Creativity and Creative Responsibility in all our projects to arrive at holistic solutions."

Ar. Neelam Manjunath



TIME  
SPACE  
EXISTENCE  
LA BIENNALE DI VENEZIA 2016  
Palazzo Grassi - Palazzo Barozzi - Palazzo Contarini

**"First they ignore you,  
Then they laugh at you,  
Then they fight you,  
Then you win."**

-- Mahatma Gandhi

**THANK YOU  
TO ALL  
MY BAMBOO FRIENDS  
FOR ALL THE SUPPORT  
AND ENCOURAGEMENT**