



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;**

mansarch@gmail.com , www.manasaramarchitects.com

cgbmtblr@gmail.com , www.cgbmt.net

World Bamboo Ambassdor, WBO

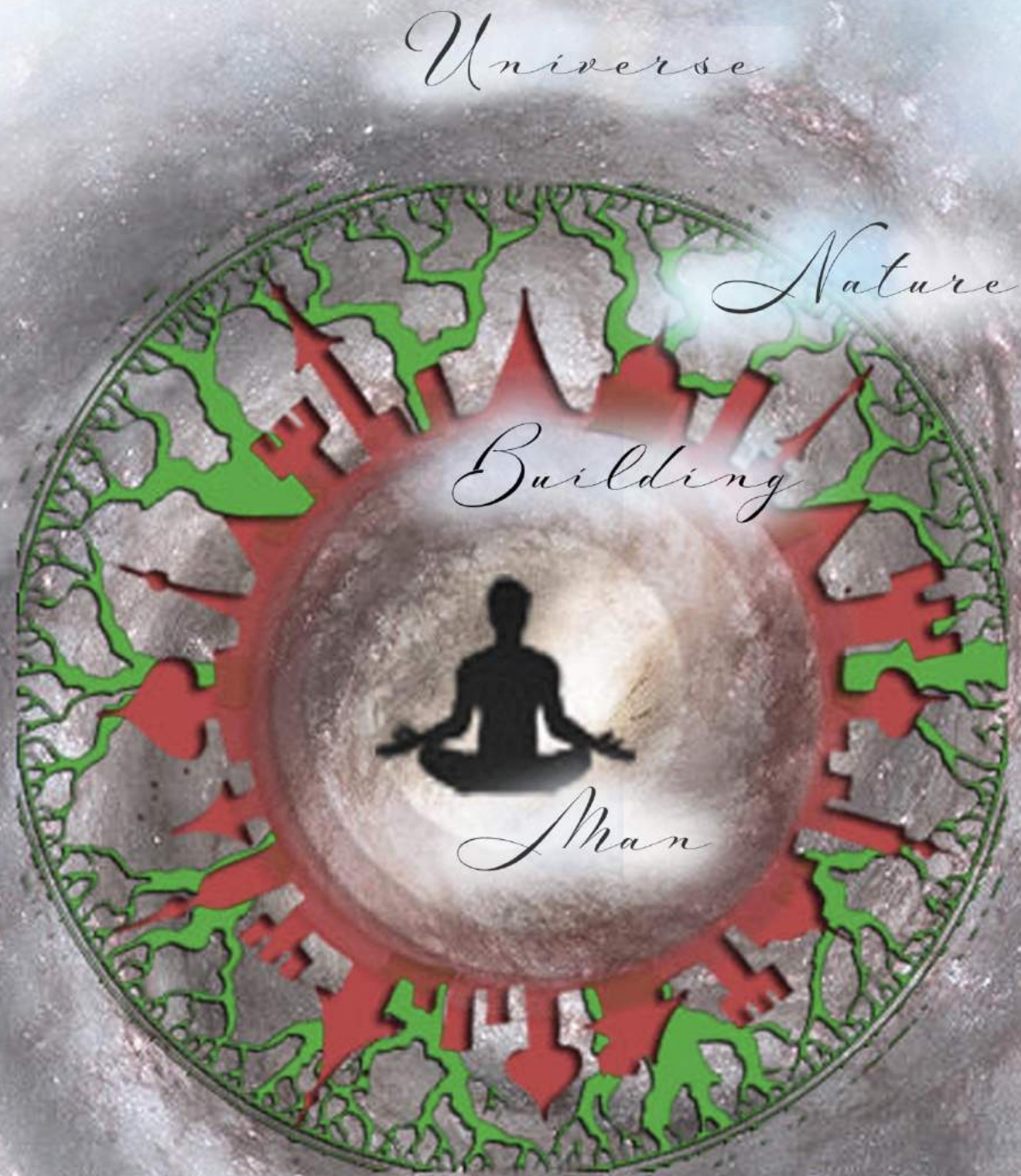
National Governing Council, Bamboo Society of India

Member, INTACH





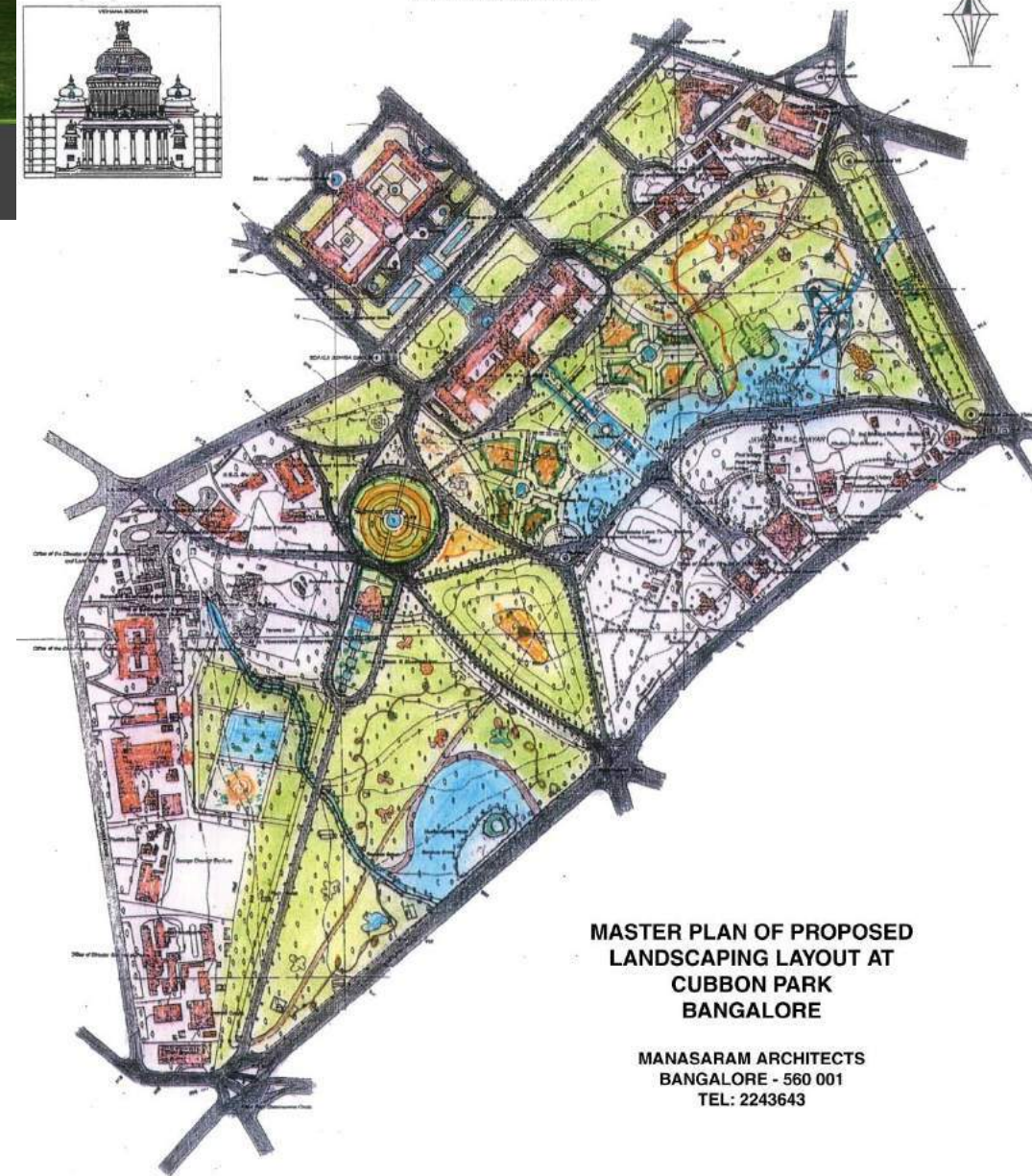
“An architect is a catalyst of change in society, setting the stage for all human activities on earth. As architects we challenge ourselves to achieve a balance between Responsible Creativity and Creative Responsibility in all our projects to arrive at holistic solutions.” -Ar. Neelam Manjunath



What is Architecture?



CUBBON PARK
CHAMARAJENDRA PARK
DEPARTMENT OF HORTICULTURE



**MASTER PLAN OF PROPOSED
LANDSCAPING LAYOUT AT
CUBBON PARK
BANGALORE**

MANASARAM ARCHITECTS
BANGALORE - 560 001
TEL: 2243643

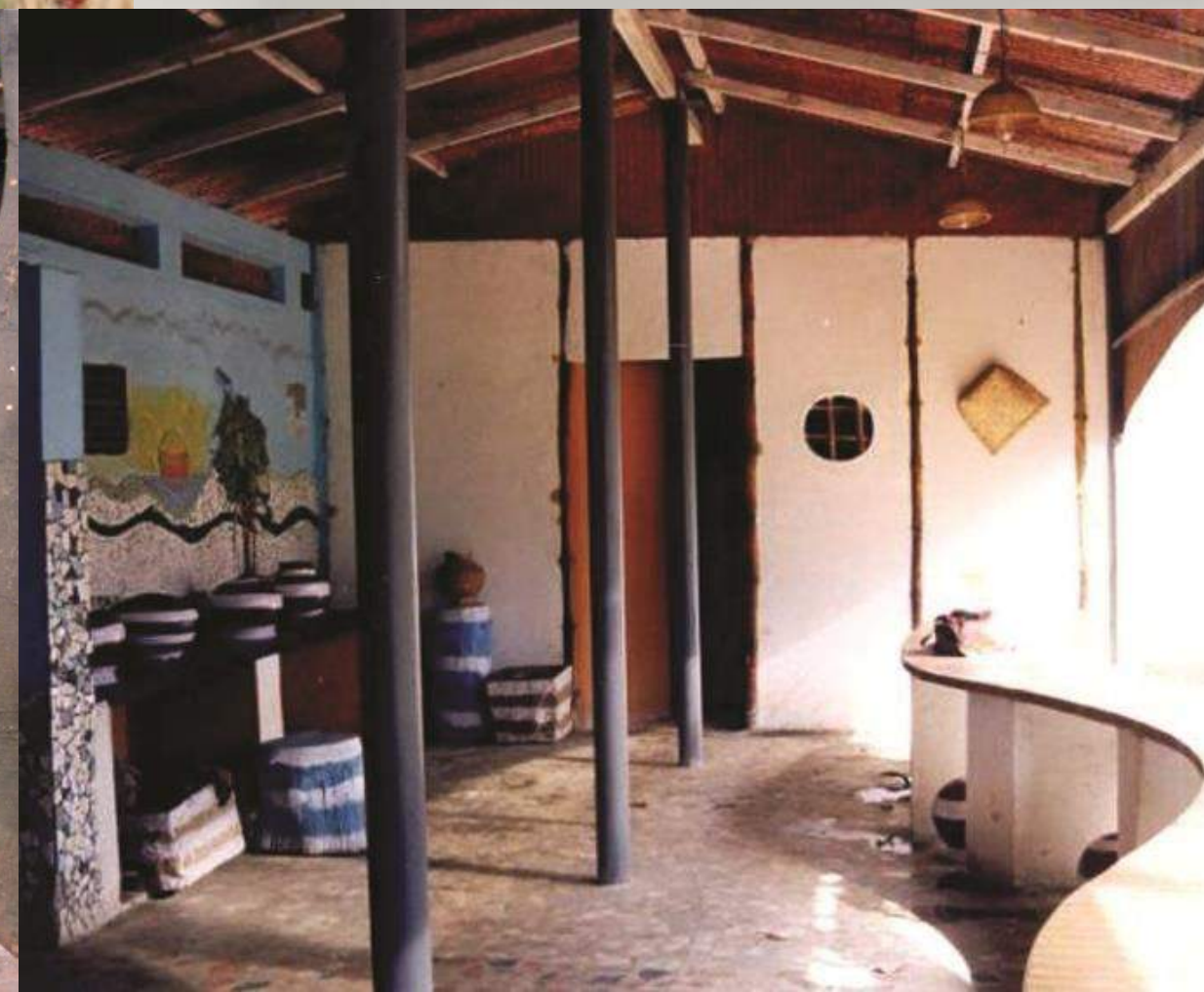


FIRST ENCOUNTER

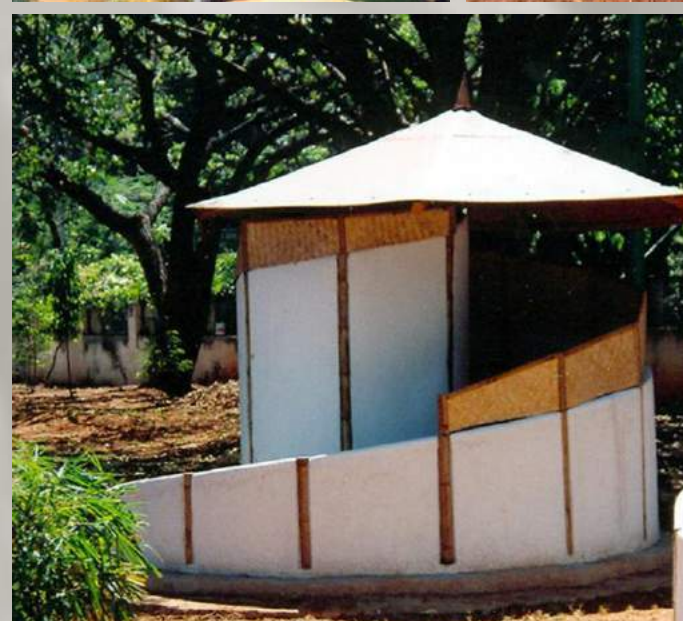


PANTRY AT RAJ BHAVAN

- 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.

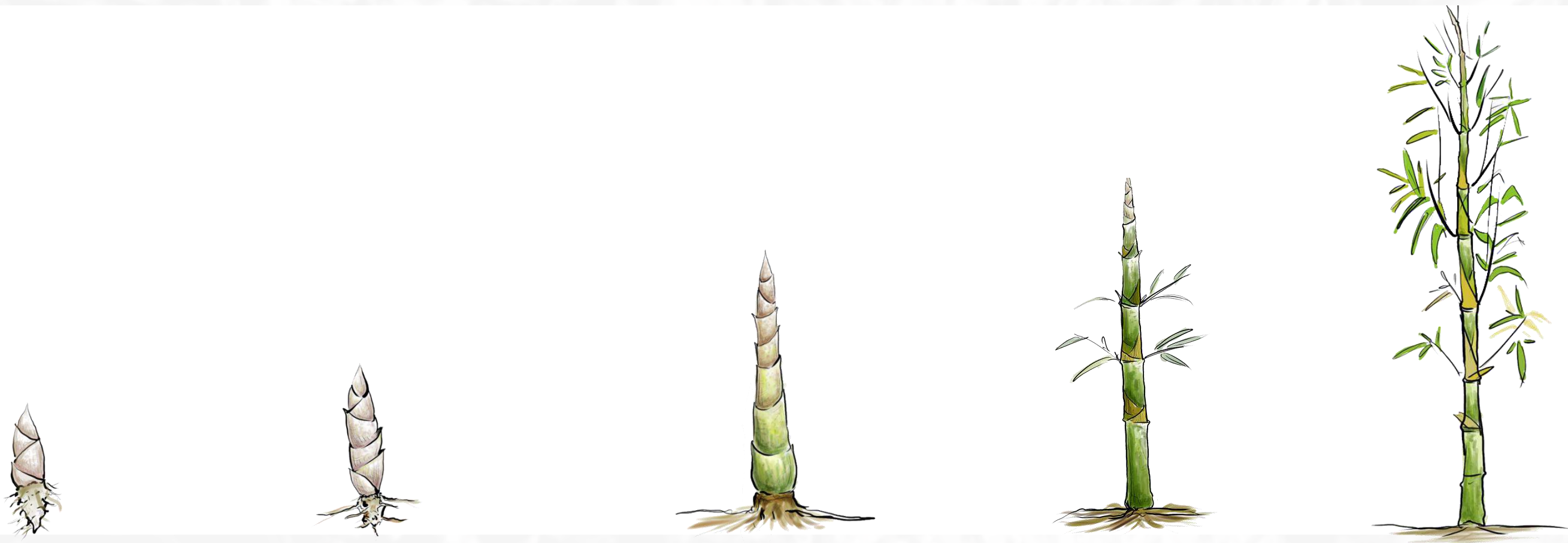


EARLY PROJECTS



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 1933:181-3)

*Symphony of the
Bamboo!*



Bamboo Unleashed!

कल्पवृक्ष

Kalpavruksha
- The Wish
Tree



Bamboo Communities



Improvising



Designing + Building

Researching



Skill Development



Documenting



"Bamboo was my choice of core material all through my projects. I feel I could express my work very well to the whole society through this material."



Thoughtful Impressions

Bamboo Architecture

Bamboo being a versatile resource characterized by high strength, low mass and ease of working with simple tools, it is desirable to increasingly make appropriate use of this material.

Neelam Manjunath, Principal Architect of Manasarm Architects, has initiated a movement by involving herself in promoting one of the most versatile naturally available materials, the bamboo. In an exclusive interview

with *Built Expressions* she shares her passion and plans to make a difference in creating a sustainable society.

In modern context, the forest cover is fast depleting and availability of wood is increasingly becoming scarce. The research and development undertaken

in last few years have estab-
 amply demonstrated that
 could be a viable substitute
 and several other traditions
 for housing and building c-
 sector and several in-
 works. In India, many re-
 architects have taken on de-
 bamboo as a viable option a-
 construction material.
 bamboo connoisseur, w-
 on using bamboo in co-
 is Ar. Neelam Manjuntla
 architect of Manasaram.
 She lives by example. Her
 house in Bangalore exen-
 elements of nature, which
 named after the concept its-
 of Five Elements'. Here too
 given utmost precedence
 her dwelling.

Right from pursuing engineering days at Architecture, Lucknow, I was fascinated by bamboo was my choice of core through my projects. I express my work very well society through this material with my interest and Bamboo has obtained me in the field of architecture.



THE TIMES OF INDIA
CITY

Bamboo bucket challenge is here for green folks

TNN | Sep 23, 2014, 04:00 AM IST

3/4 BHK Homes, Bengaluru
Book Luxury Apartment with Study at Bannerghatta Main Road. Know More!
windchimes.mahindraalfespaces.com

Largest Owner Real Estate
Development Portfolio. Of Over 20 Million
Square Feet.
centuryrealestate.in/Enquire_Now

Ads by Google

Bangalore: The Ice bucket and rice bucket challenges are passe; the bamboo bucket challenge has picked up steam in the city. Ten bamboo saplings have been planted on the Mahatma Gandhi Institute of Rural Energy and Development (MGRID) campus in Jakkur as part of the campaign launched by the institute and the Centre for Green Building Materials and Technology.

The drive began on September 18, World Bamboo Day, to increase the numbers of the dwindling 'green gold' in the state.

The challenge is simpler. One person plants a sapling and challenges two of his/her friends to do the same, and the chain follows by each person nominating two others. Experts say the commonly available bamboo shoots in Malleshwaram, Kodagu and Mangalore are nowhere to be seen this time around. "Bamboo shoot pickle, which is popular in Kodagu, is also not available this year," says Syam Viswanat, a scientist at the Institute of Wood Science and Technology.

Growers do not find the state suitable for bamboo cultivation. "There is no incentive for growing bamboo as the trade and transit rules are heavily regulated by the forest department," Viswanath adds.



పెరింతన్న వసారా భల్లూ ఉంది కదూ..



చివరి అంతస్తులో ఉన్న మెట్ల గది

45659 ARTICLES OF ART & DESIGN!

MANASARAM ARCHITECTS: BAMBOO SYMPHONY

5 YEARS AGO BY KIKOS PAPADOPOULOS IN UNCATEGORIZED

DESIGN STORES MAGAZINE



DESIGN CATEGORIES

EXHIBITIONS AND EVENTS

SUBMIT ART AND DESIGN NEWS



🔍 Search this site



this office building is a successful exploration of bamboo as the primary building material, constructing the structural framework, reinforcement and furnishings from different forms of the plant.

[read more](#)

Publications

ವೆದುವಿಂಟಿ ಅಂದಾಲೆನ್ನೊ ಮೂ-ಶಾರಾ!

[illegible]

● పెద్ద కిటికీలు, నేల ముట్టం నుంచి ఒకటిన్నర మీటరు ఎత్తులో ప్లాస్టిక్, పైకప్పుపై కురిసే ప్రతి

- తక్కువ ఖర్చుతో నిర్మాణం
- దూరాళంగా గాలి, వెలుతురు

నవ్వు వర్షం నీటిని నిలువ ఉంచుతున్నందుకు 'గె' వేల టీటర్ల సున్న, మేపల్లె, స్నానాల గది ముని వృథాగా వెళ్లి నీటిని ఇంటి వెలుపల్లోని మొట్టలకు వానానాలను కడుక్కునేందుకు ఏరియోగ్రానుకునిండుకు టీటర్ల టీటర్ల ప్రత్యేక కట్టాకు. స్నానకంఠం లెంపెనె వర్షానికి, వేరేవేల రాగ్నను ఇంటి కుటుంబ సభక దారి, ఇలా ఎన్నెన్నో ఇ ఇంటి లోగిరిలో ఉంచినవేయాను. అదే నిర్మాణం వర్షయిన తరువాత అట్టిచిక్కిర్ విద్యాభ్యాసకు ఇది అవ్వయిన కేంద్రంగా మారింది. పై అంతర్జాతీయ విమల అట్టి లతో పైకప్పు వేసి ఒక గదిని ఇంటిలో మలిచారు. ముప్పవో హుడిన పైకప్పు నిర్మాణంలో కూడా వెయ్యి అట్టిలలో నివేయగోరాదు. వర్షం కరిసినప్పుడు ఇంటికి ఏదియోగాదు. వర్షం అవలె వెళ్ళవలెను.

బాధ్యత వహించే వినియోగించడానికి తనను కలుసుకున్న 'మ్యూజియం'కు గీతం ముద్రాపాత విధించారు. వర్షం కురిసినప్పుడు జలలే మువ్వ పొర్లుచేసుకున్నట్లు గురిత (తొట్టి) నీరు వచ్చేలా ప్రత్యేక పొర్లుకు బాధ ఉంది గానీ, మెరుగు ప్రవృత్తులగా లభిస్తున్నందున తక్కువ ఇంజనం కల్పింపబడదని అను తలచారు. 'తల' ఎవర్నో తోడుగా అభివృద్ధి అవుతున్నది నిర్మాణం జడన అను చెప్పారు. 'మే' అను వినియోగించడం ద్వారా నిర్మాణం జరుగుతున్నానని తగ్గిపోయాయి. ప్రపంచంలో వెలుగు ఎక్కువగా సాగయ్యే దేశాల్లో భారత్ రెండవ స్థానంలో ఉంది. మెరుగు వర్తనలు, బొంగుర్లు తోటి యానీ. బోరాల్ని బ్రాహ్మణత్వ వర్ణ మేమునం ద్వారా చెలకొనబడుతున్నాయి. రంగ్రాలు వర్ణమున కాబాడతనవచ్చు నిర్మాణంలో వినియోగించిన వెలుగుపై సూర్యరశ్మి వర్షం నీరు వెలుగునూ జాగ్రత్త తీసుకోవాలి. లేత వెలుగు బొంగునూ కాకుండా. జీవనం ఏ పక్ష వస్తువు వచ్చునని నిర్మాణంలో వినియోగించుకుంటే ఎప్పుడు ముగ్గుర వస్తువునో అను విధించారు.

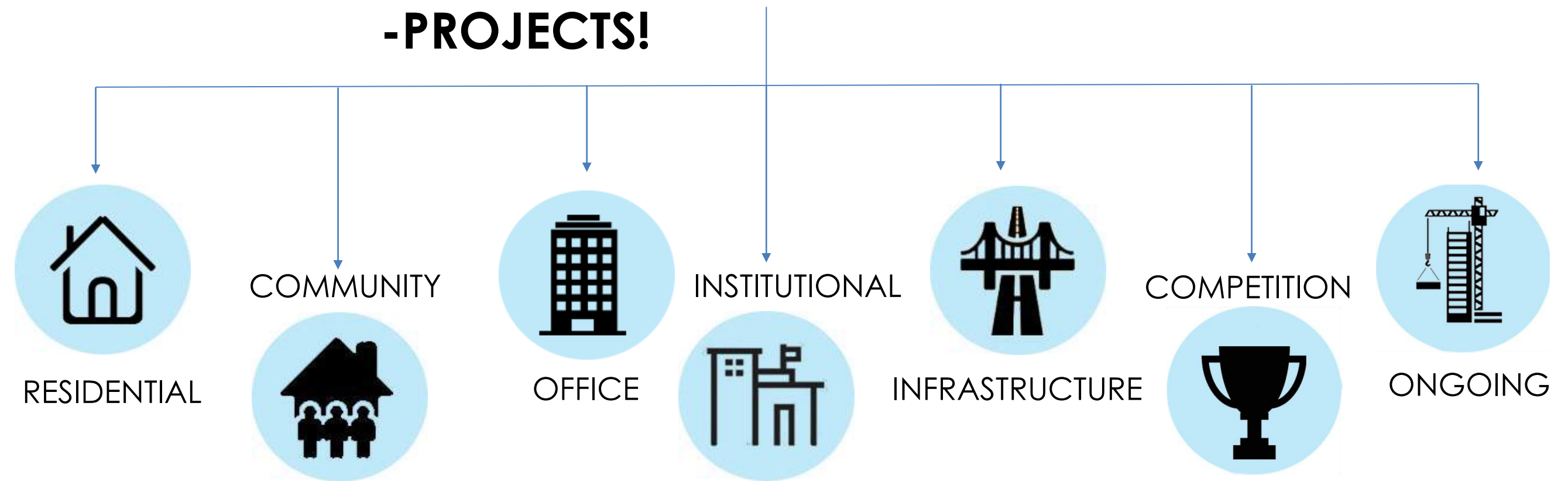


సాయంత్రం వేళ కుచ్చటాడుకుంటూ ఇక్కడ కూర్చోనచు,



సాంబర్యానికి నిలువెత్తు దర్శనం.. ఈ స్మర సీమ

WINDS OF CHANGE -PROJECTS!



PROJECTS



RESIDENTIAL

COMMUNITY



OFFICE

INSTITUTIONAL



SCHOOL



INFRASTRUCTURE

COMPETITION



HOUSE OF FIVE ELEMENTS



HOUSE OF FIVE ELEMENTS

Client: Ms. Neelam Manjunath

Built-up area: 1118 m² / 12,034 ft²

Year of completion: November 2009

BUILDING WITH PANCHAMAHABHUTHA THE FIVE ELEMENTS OF NATURE....

THE GREEN ROOF RISING FROM THE GROUND,
GIVING BACK 125% OF THE EARTH EXCAVATED....

SPACE
ENDLESS....

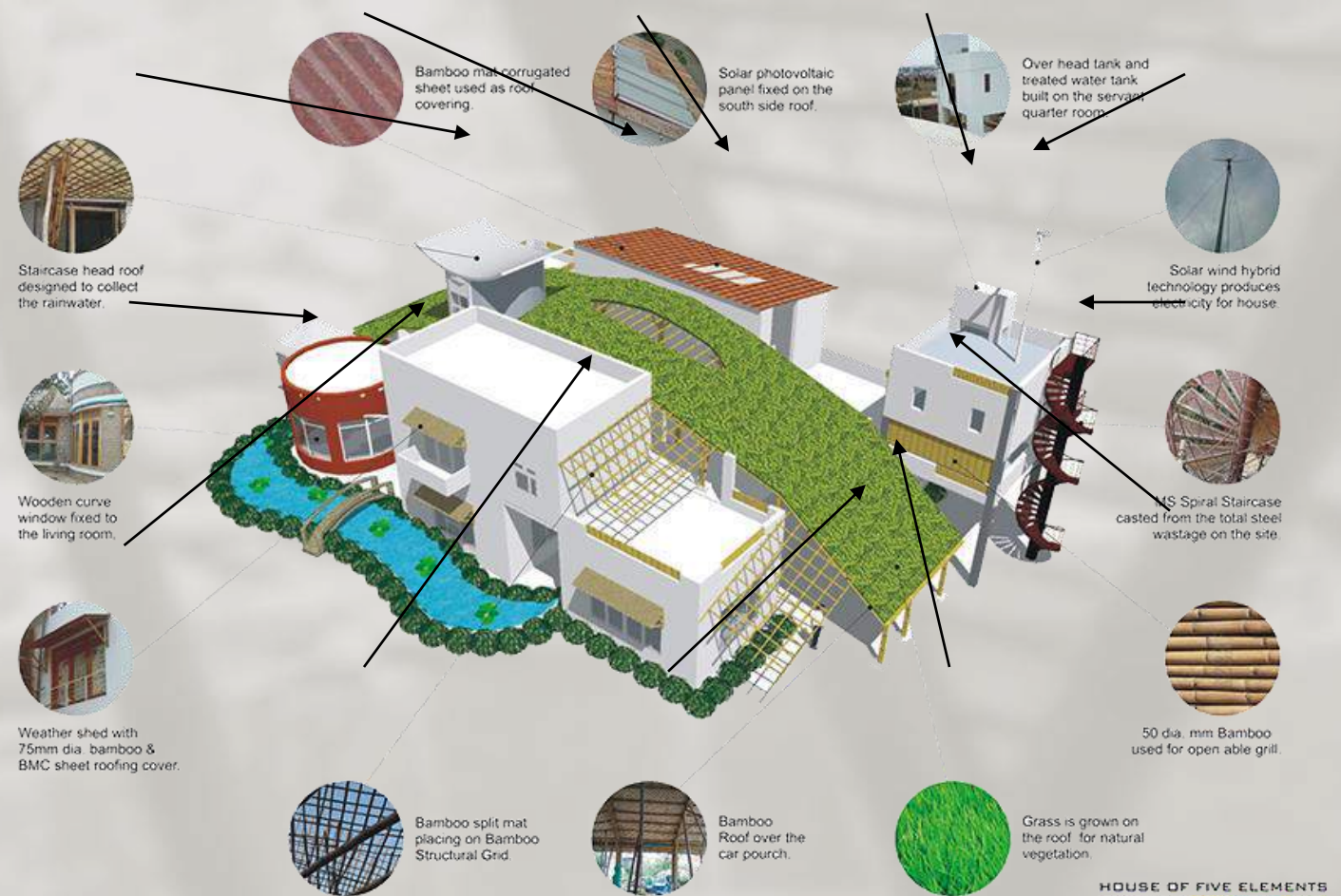
LIFE GIVER...
CONVENTION...
AIR

CONVERSION...
CONSUMPTION...
FIRE

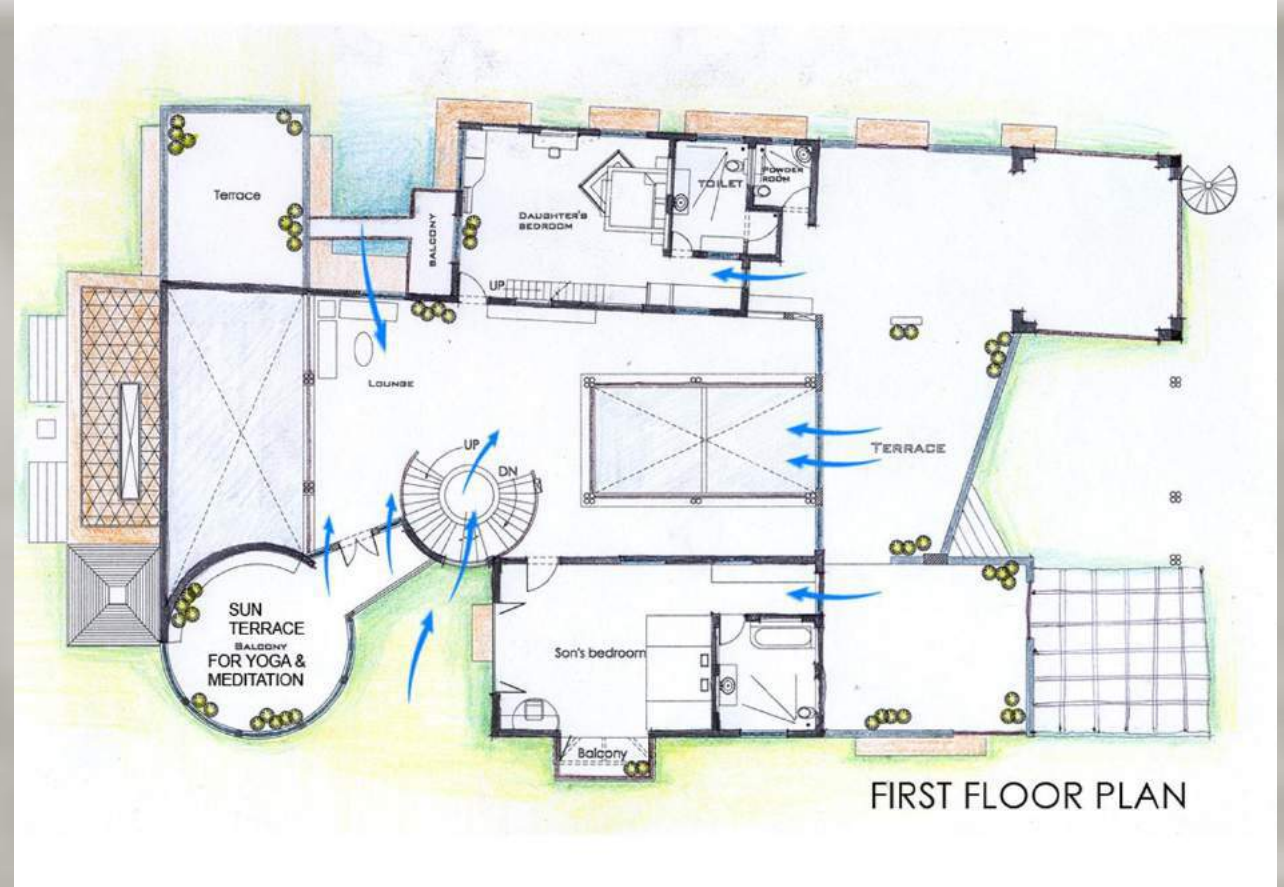
ABSORPTION...
COSTITUTE OF ALL
LIVING BEINGS...
WATER

PRODUCTION...
CONDUCTOR...
MOTION...
EARTH

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

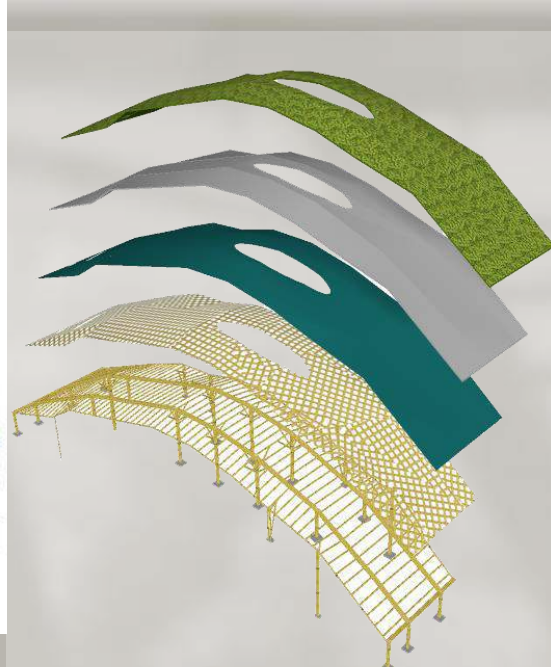
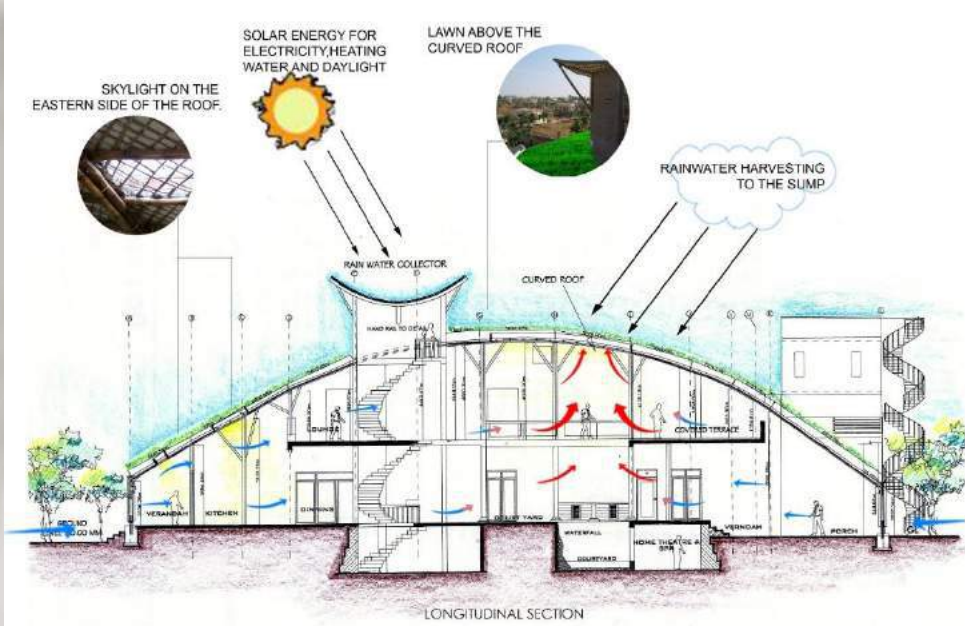


HOUSE OF FIVE ELEMENTS



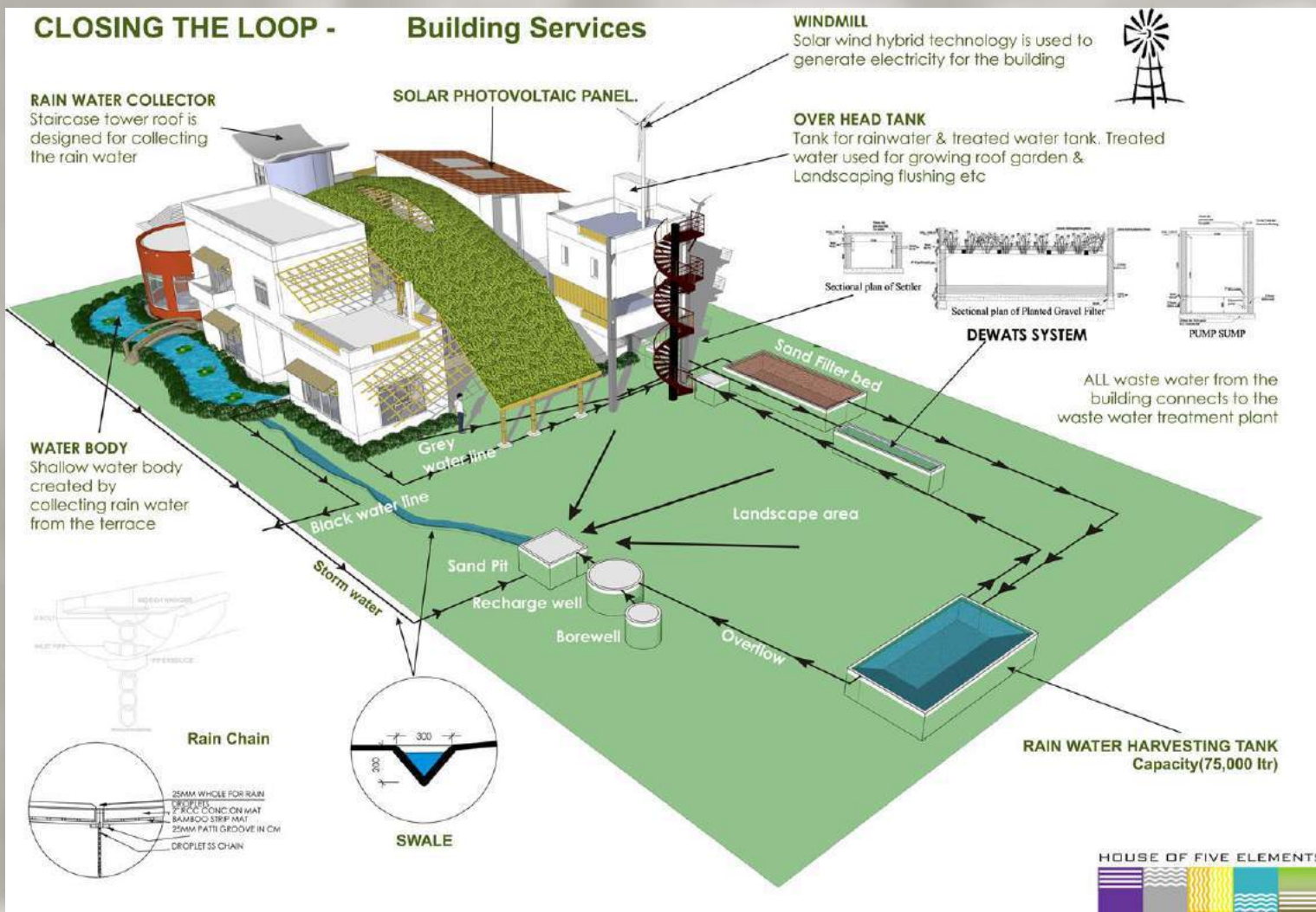
The spaces in this house flow and merge with each other, with the open to sky courtyard with a waterbody, open kitchen and dining with a double height. There are three bedrooms and a drawing room, around the courtyard, which helps in cross ventilation through Venturi Effect.





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 m² / 2260 ft²

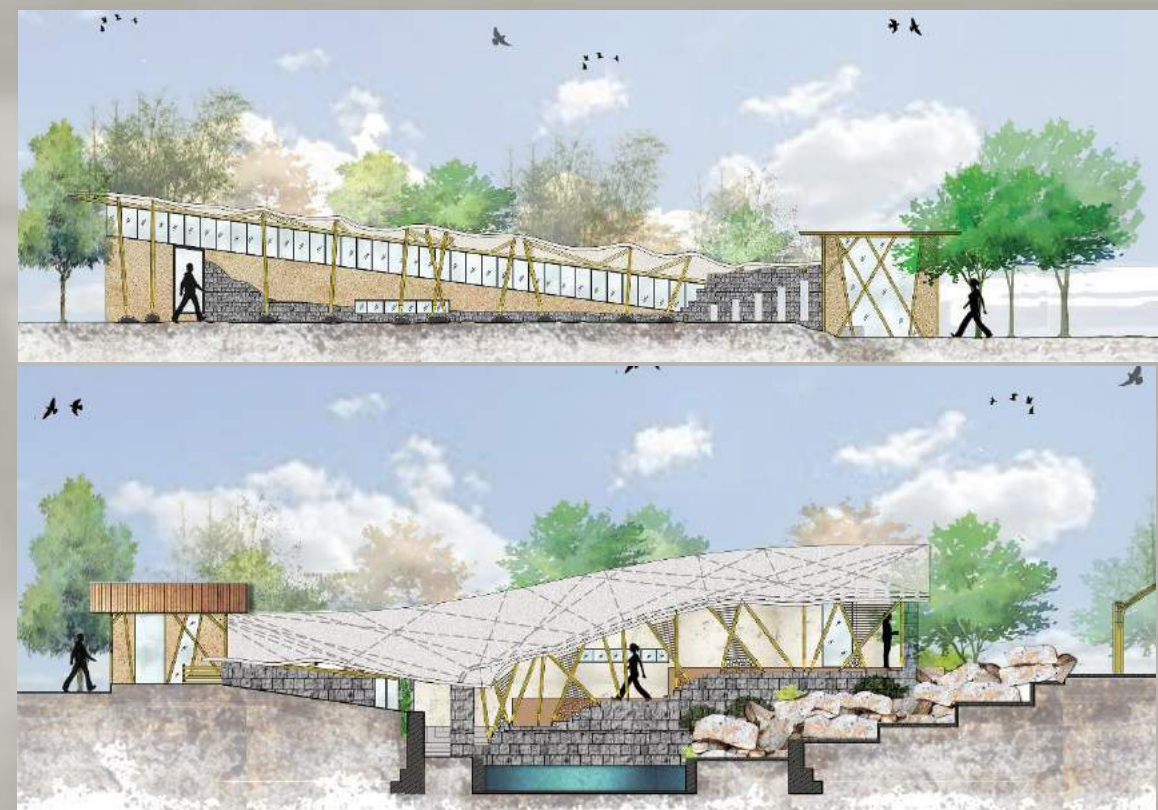
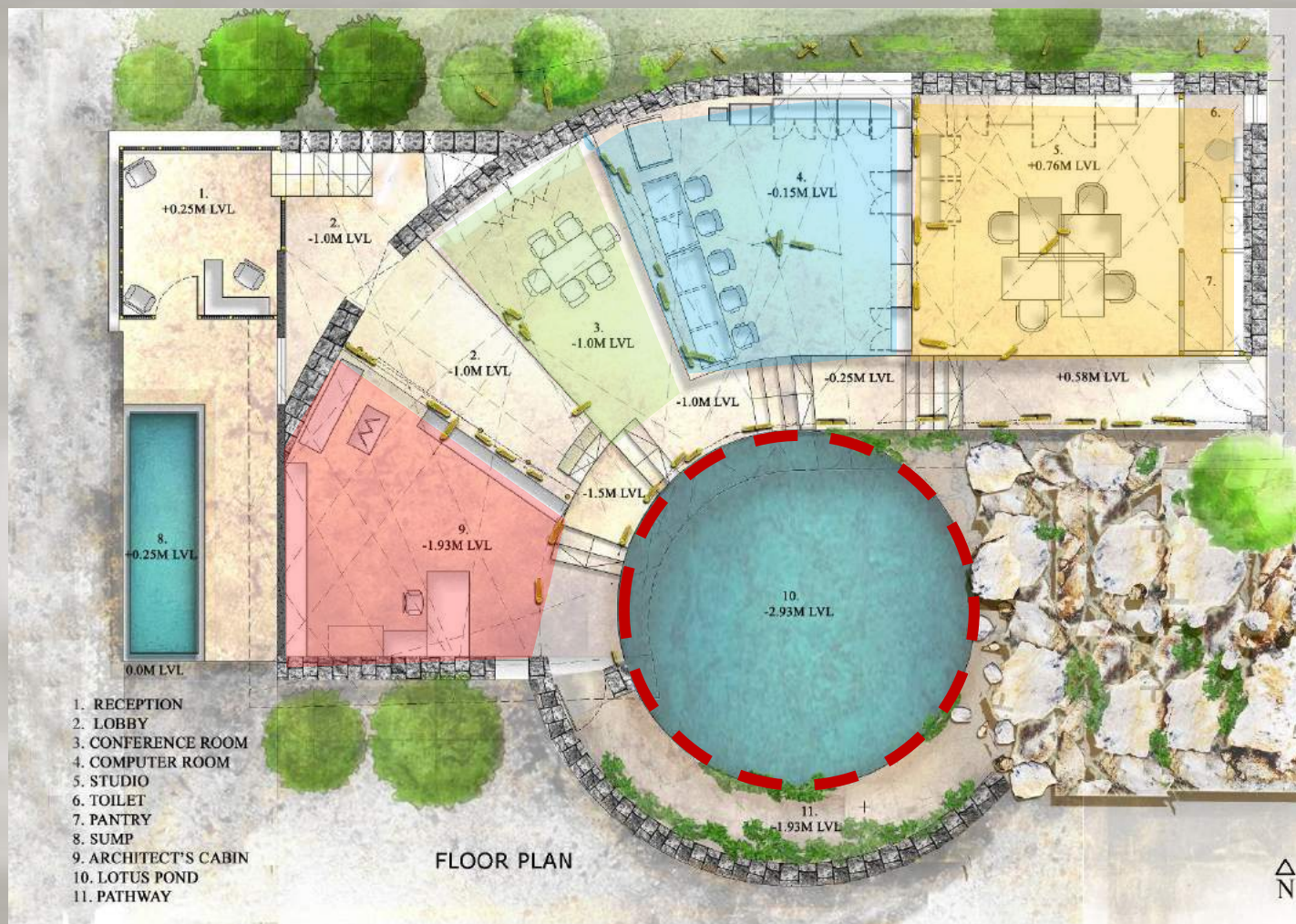
Year of completion: 2010



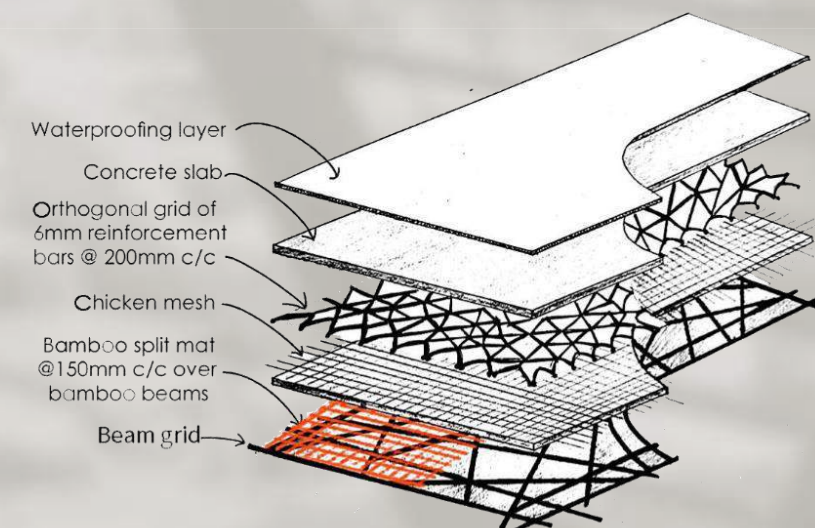
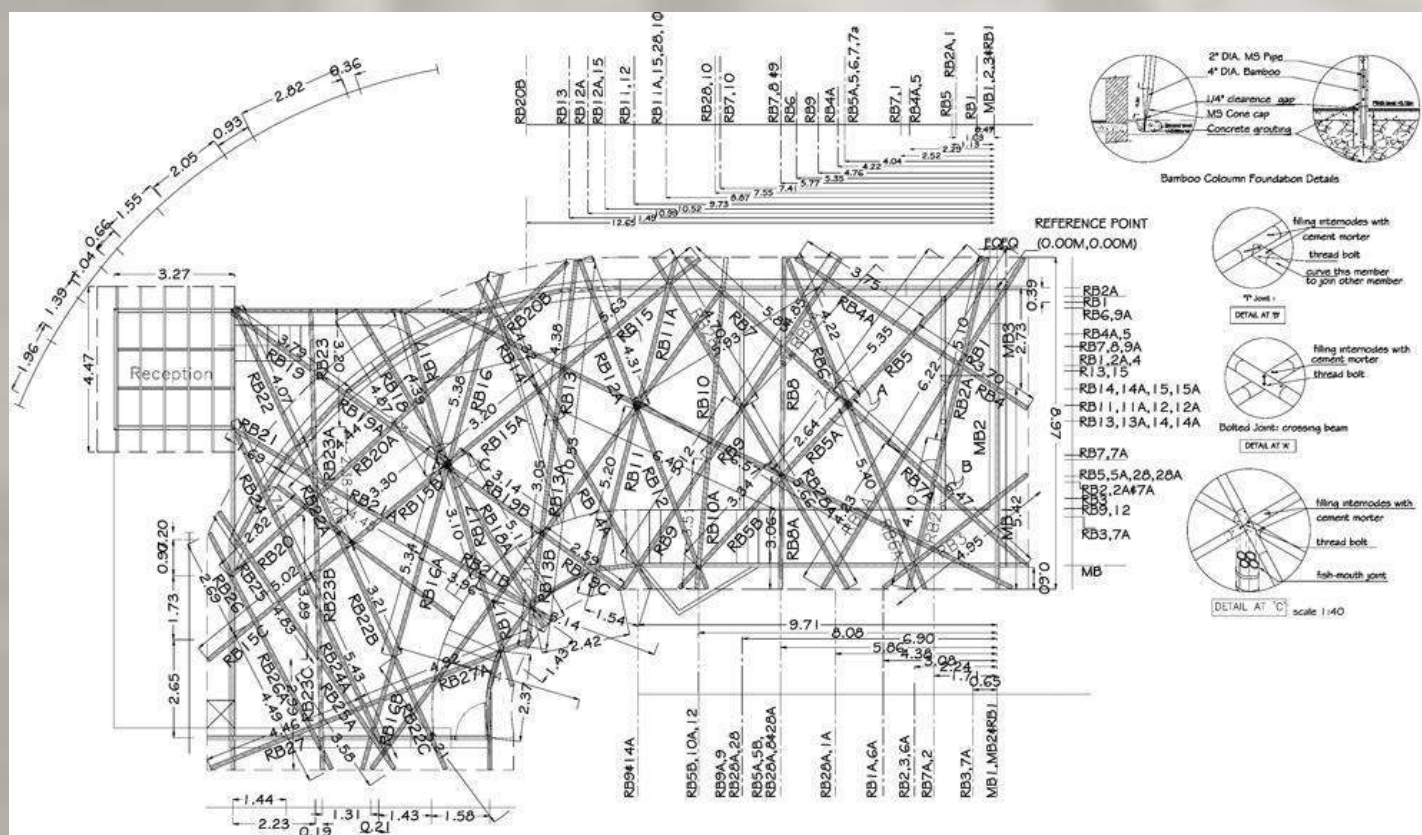
Our office had to embody all our design philosophies along with other requirements of space and services, to serve as an example of our professional practice both existing and in the future. We chose bamboo as the main material for our building and called it **Bamboo Symphony**.







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.



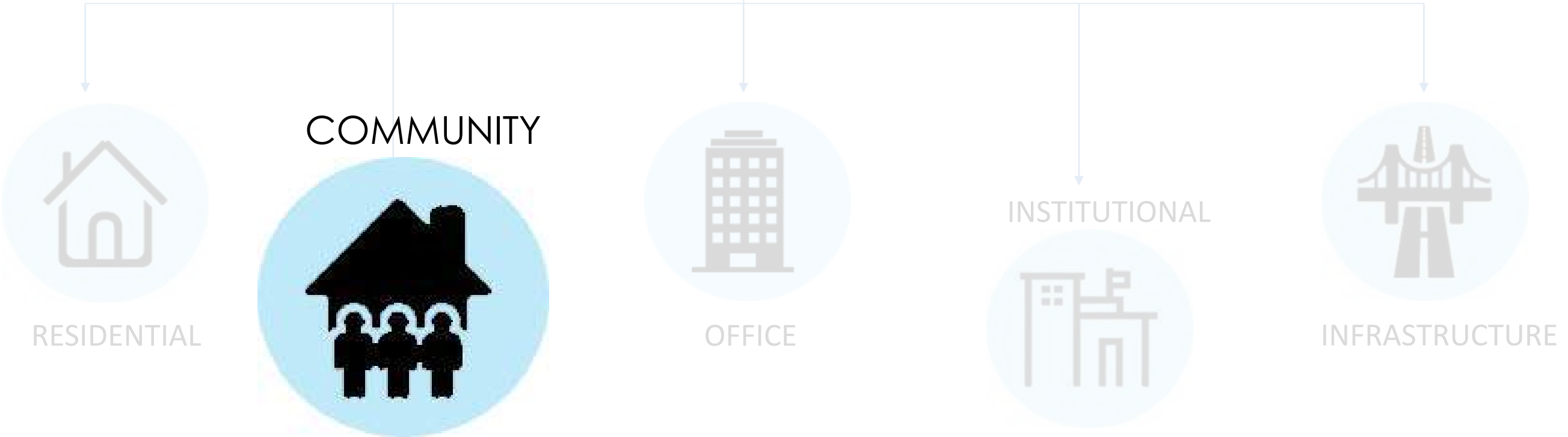
The RWH pond is landscaped with locally available water plants, enhancing the microclimate and humidity, planned to maximize the durability of the Bamboo members used in the building.



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 1st 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

COCOON



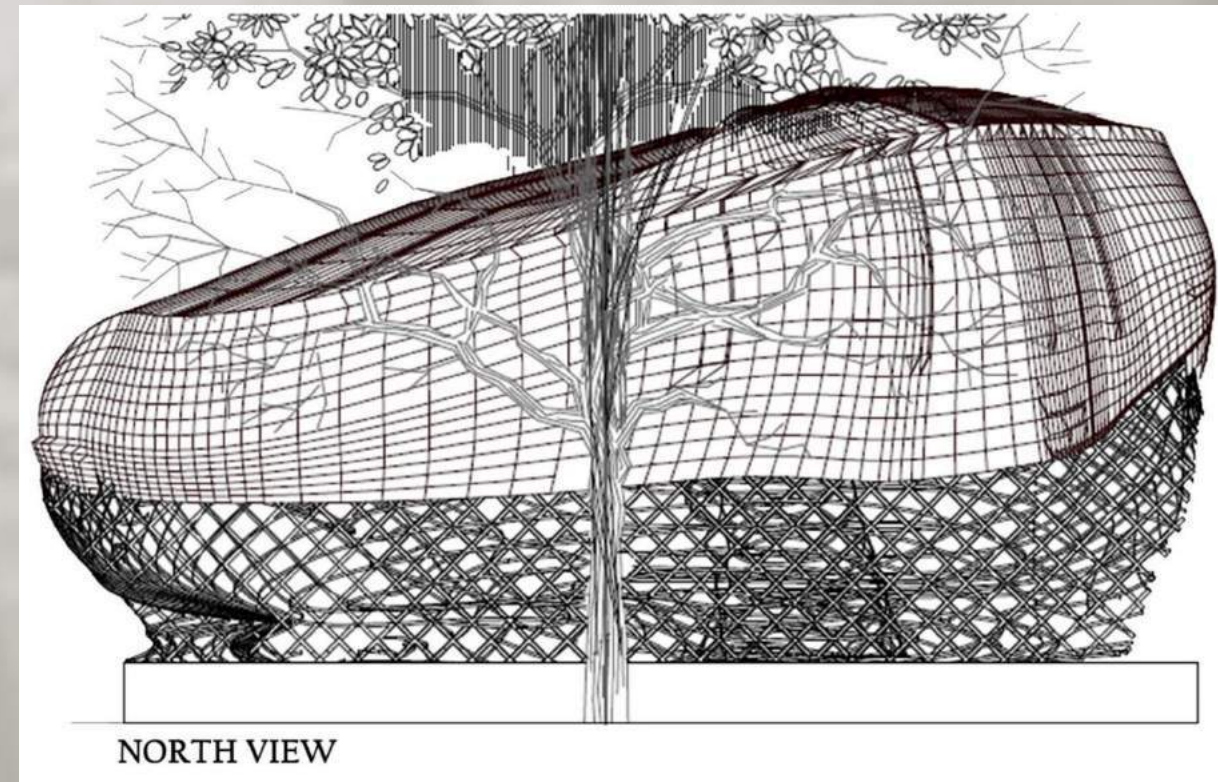
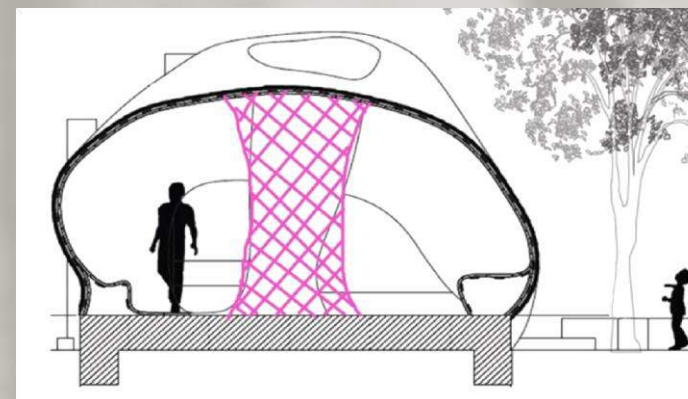
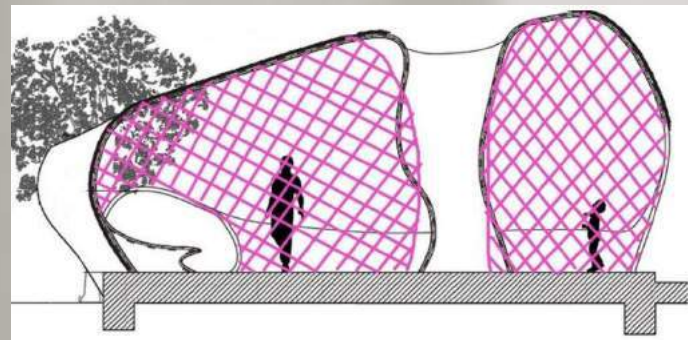
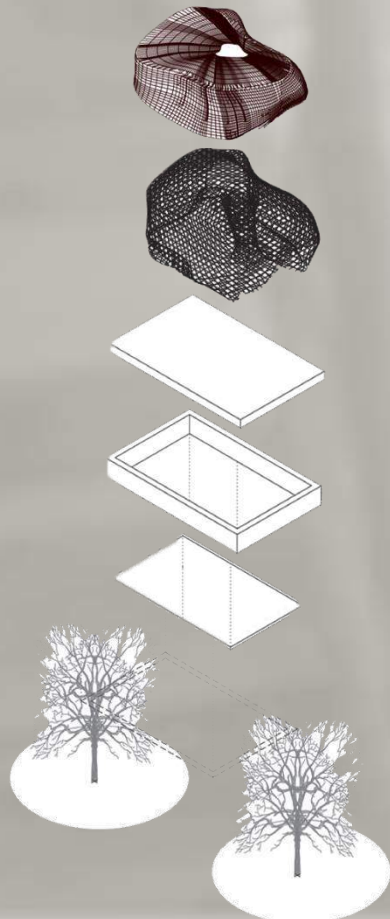
Design Team, location: CGBMT, Manasaram Architects, Aarhus University, Denmark, BCHO Architects, CARE College of Architecture, Trichy

Client: Krishi Vigyan Kendra

Built-up area: 37 m² / 400 ft²

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.

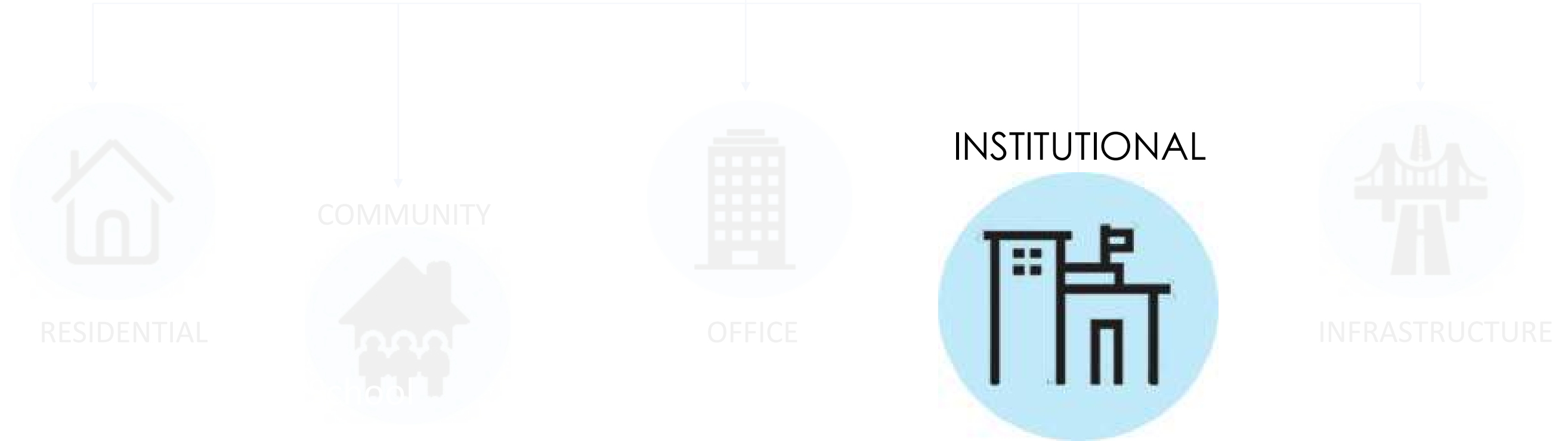


Done as a workshop with students of C.A.R.E. College, Trichy and Aarhus School of Architecture, Denmark.

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



CRECHE, DEI,
Agra, India





CRECHE, AGRA

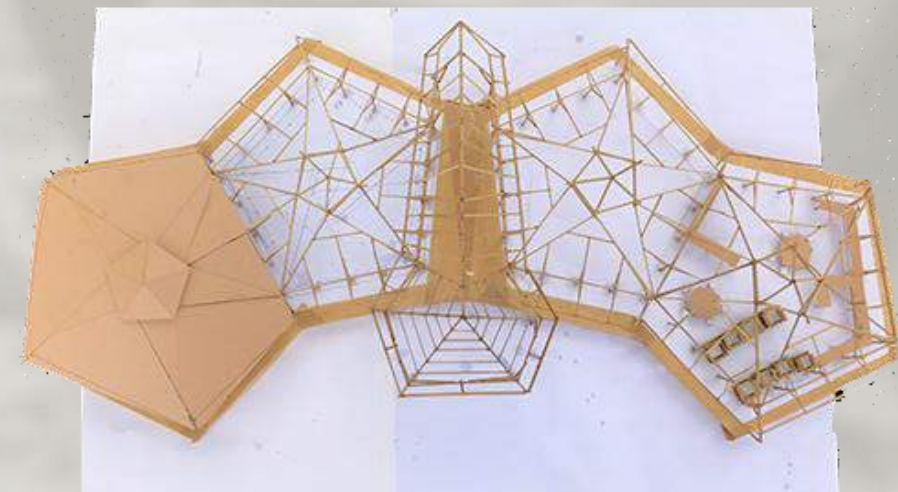
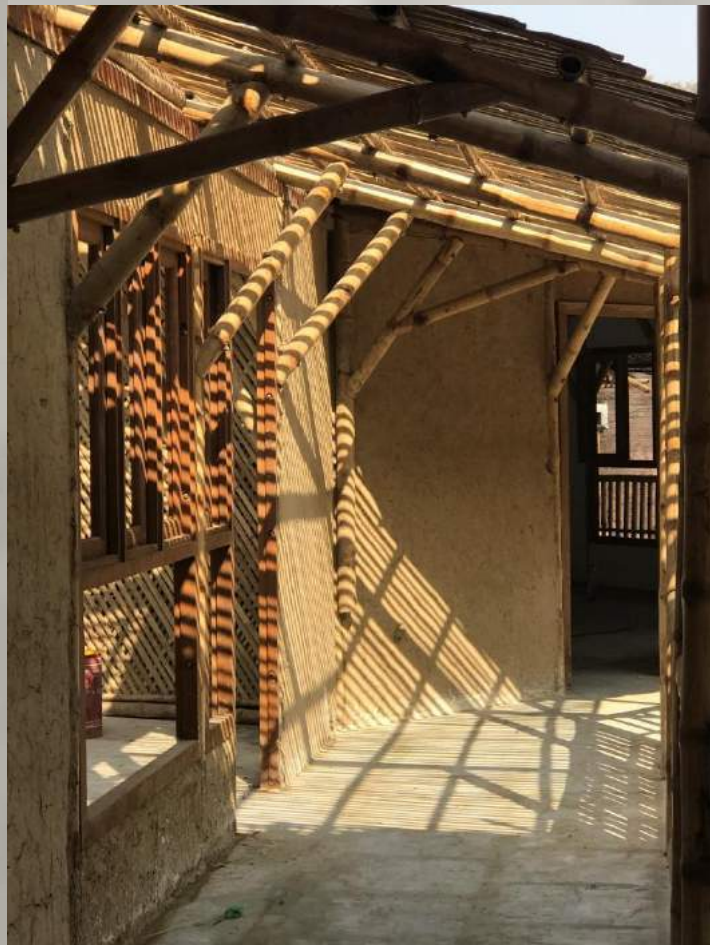
Design Team: CGBMT, Manasaram Architects,

Bangalore.; **Client:** DEI (Deemed University),

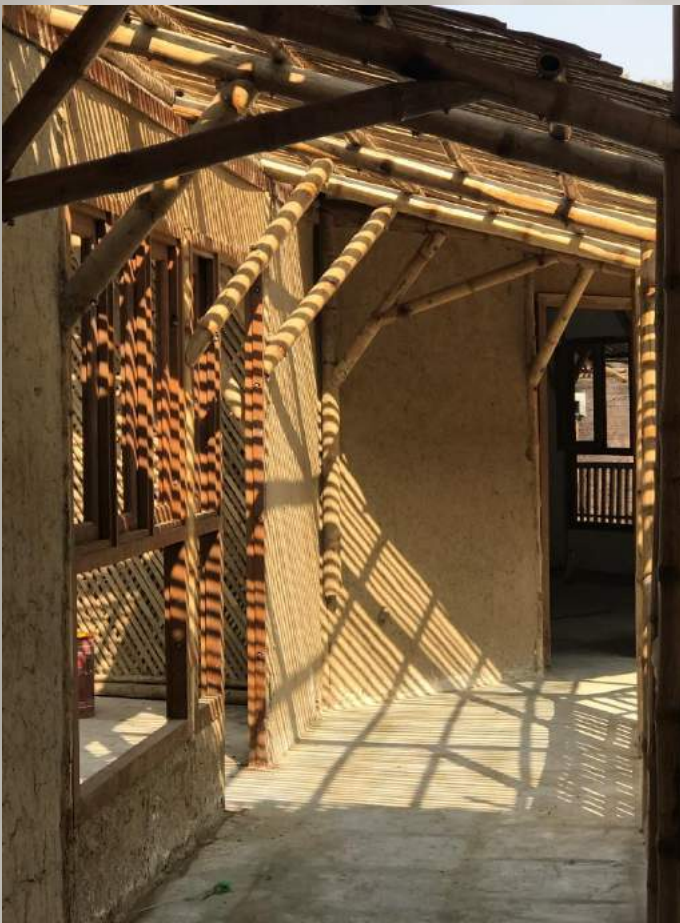
Agra **Built-up area:** 607 m² / 6540 ft²; **Year of**

completion: 2018

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



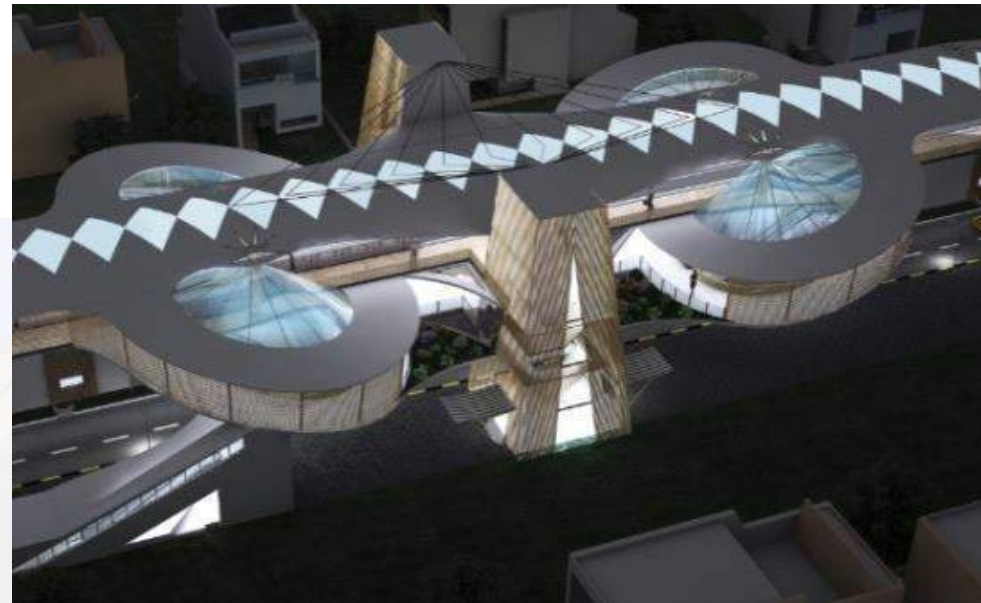
Local artisans, students, faculty members, and Dayalbagh's Work Department were part of the execution team under the principal architect's guidance.



PROJECTS



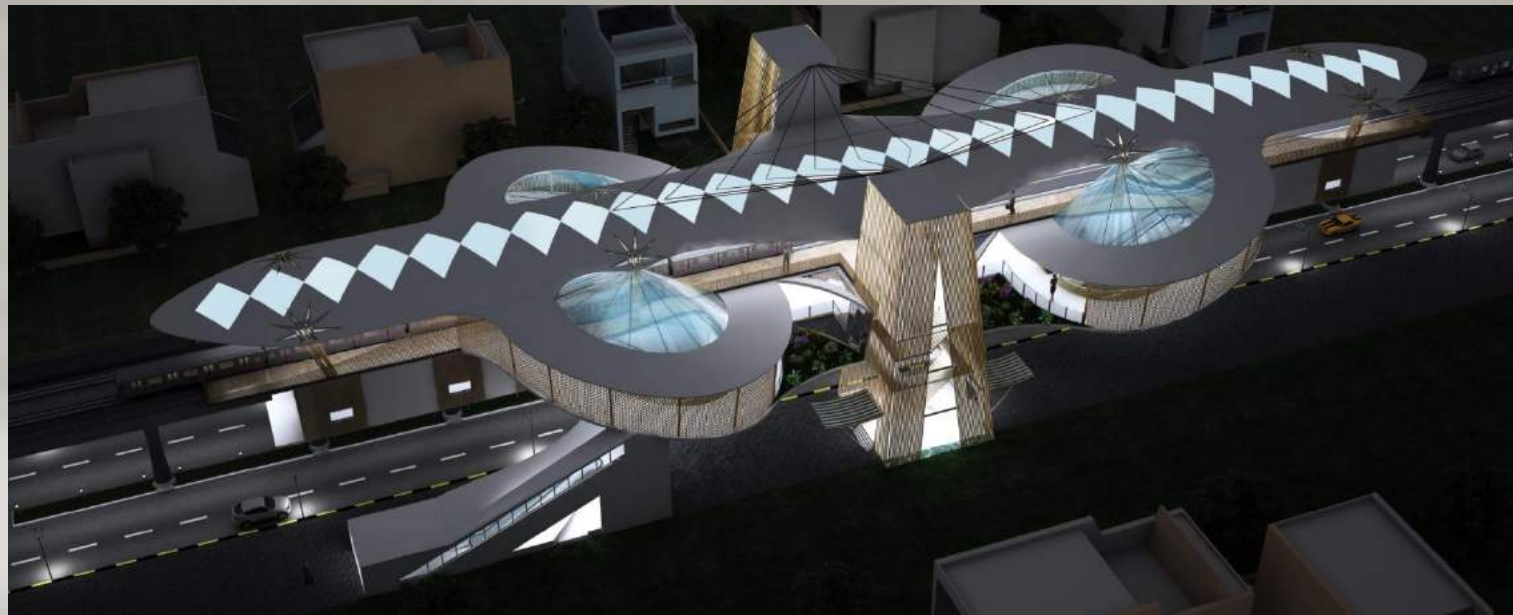
METRO STATION.
Bangalore



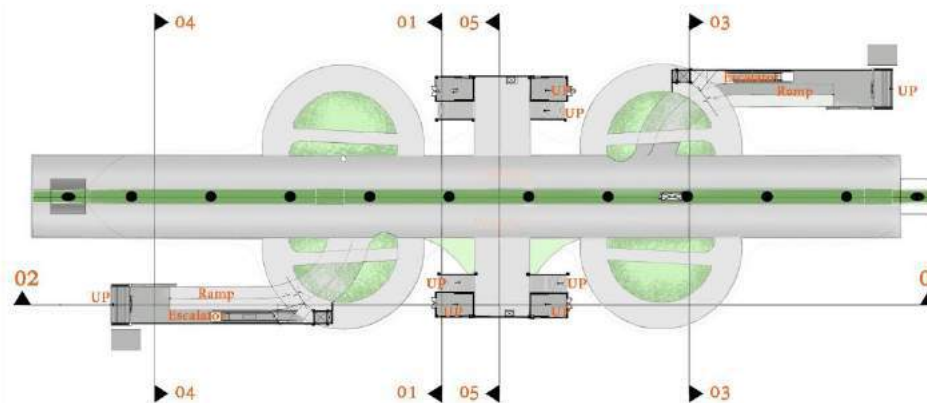
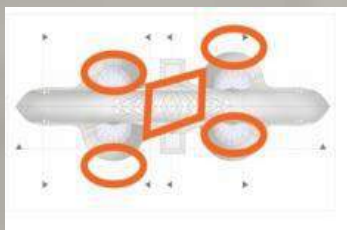
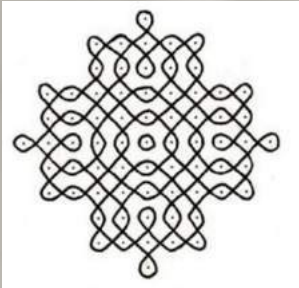
METRO STATION

Design Team, location: Manasaram Architects, Bangalore.

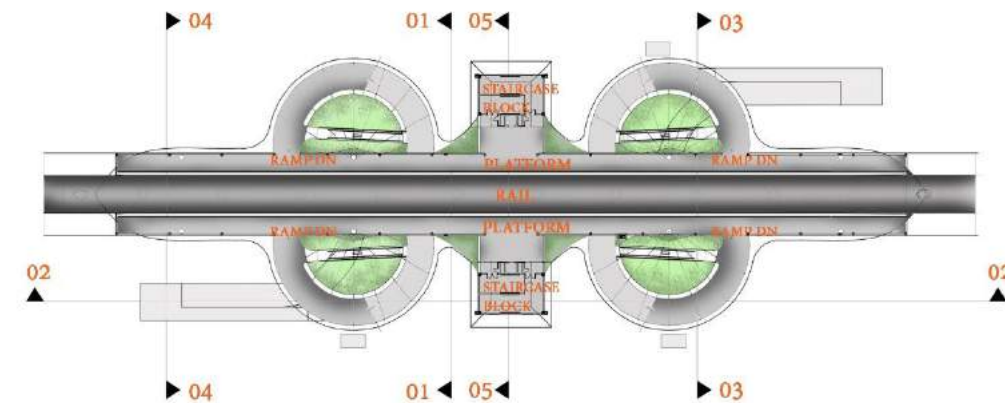
Client: Bangalore metro Rail Corporation Ltd.



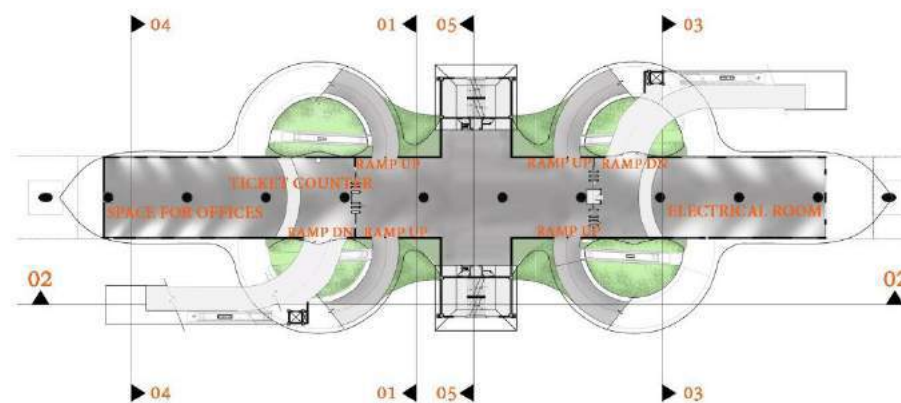
The form of the metro station has been derived from the logo of the Namma Metro, Bangalore and the structure is designed as a lattice grid shell structure derived from the weaving techniques for Bamboo.



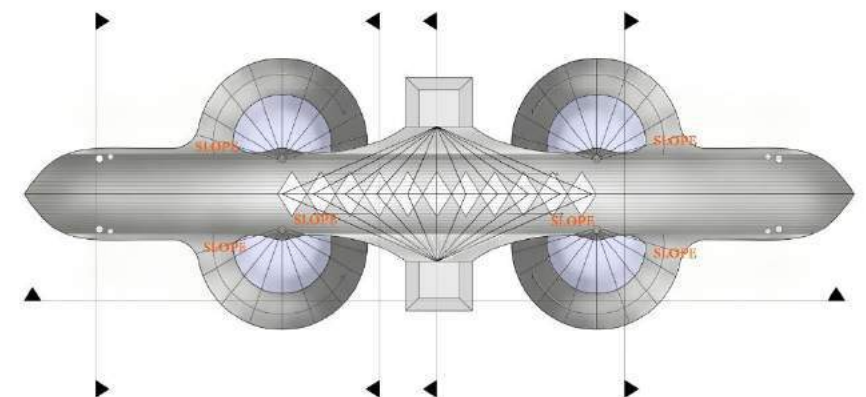
PLAN AT ROAD LEVEL



PLAN AT PLATFORM LEVEL

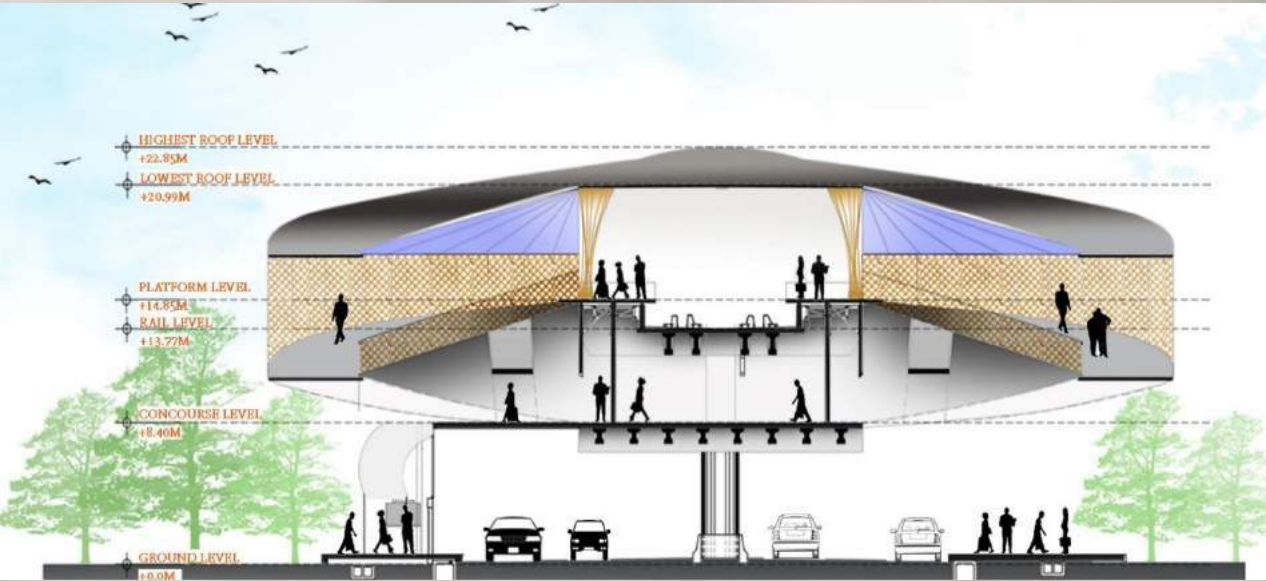
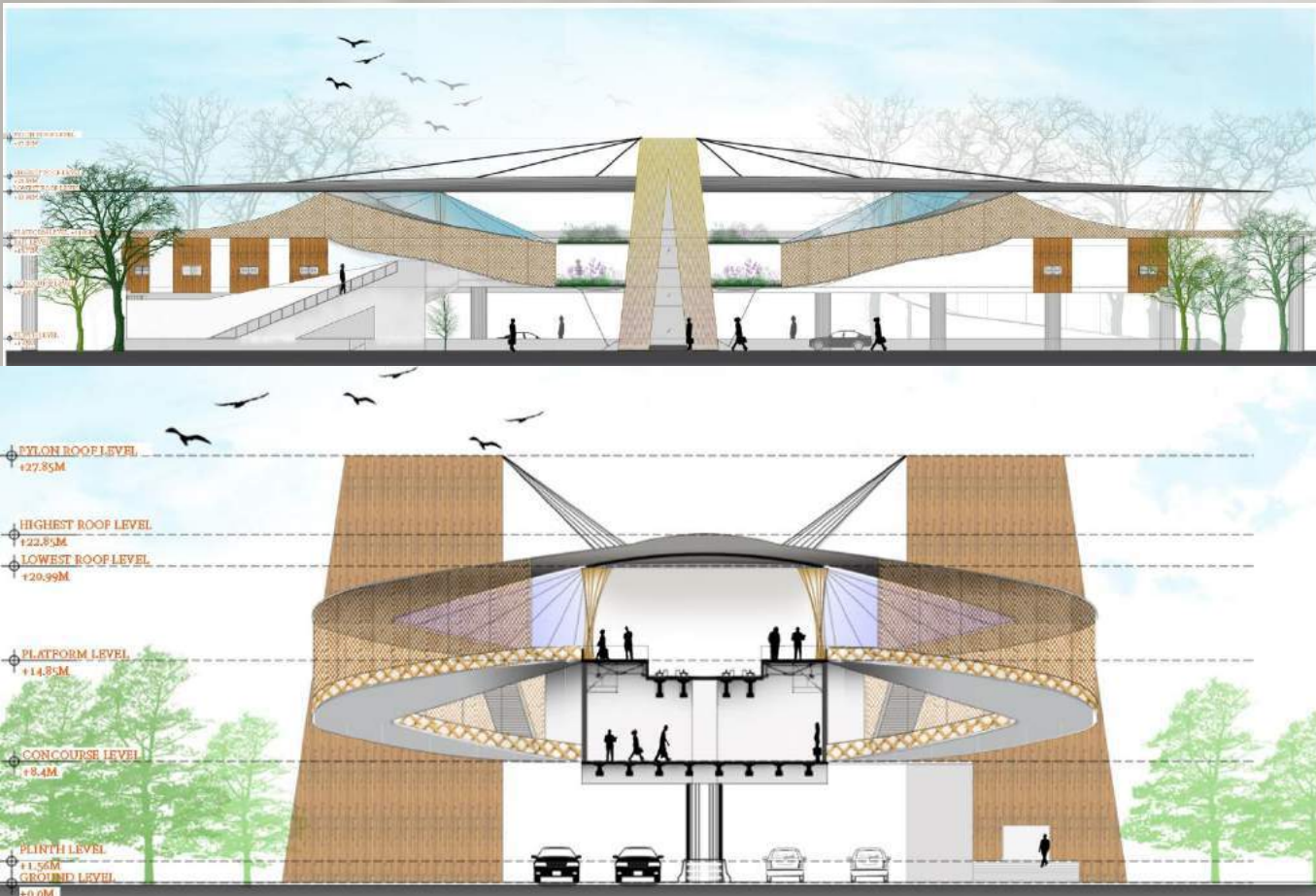


PLAN AT CONCOURSE LEVEL



PLAN AT ROOF LEVEL

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

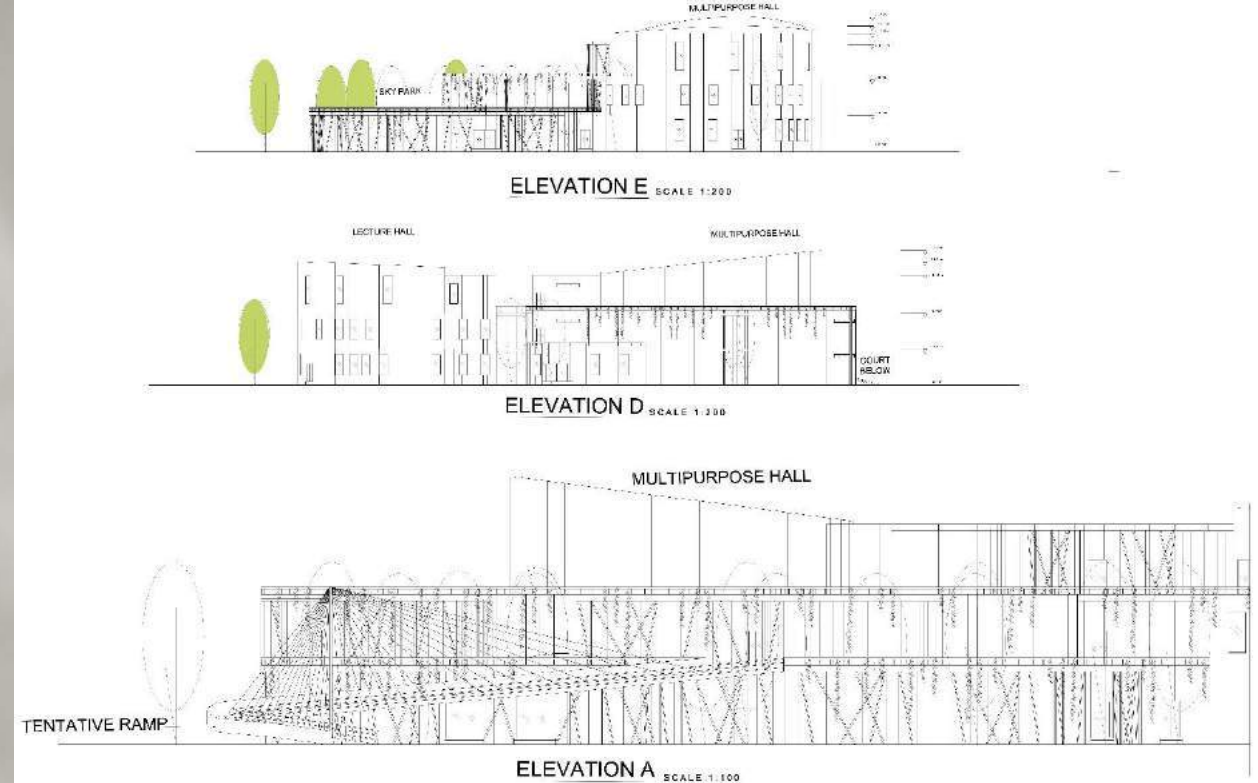
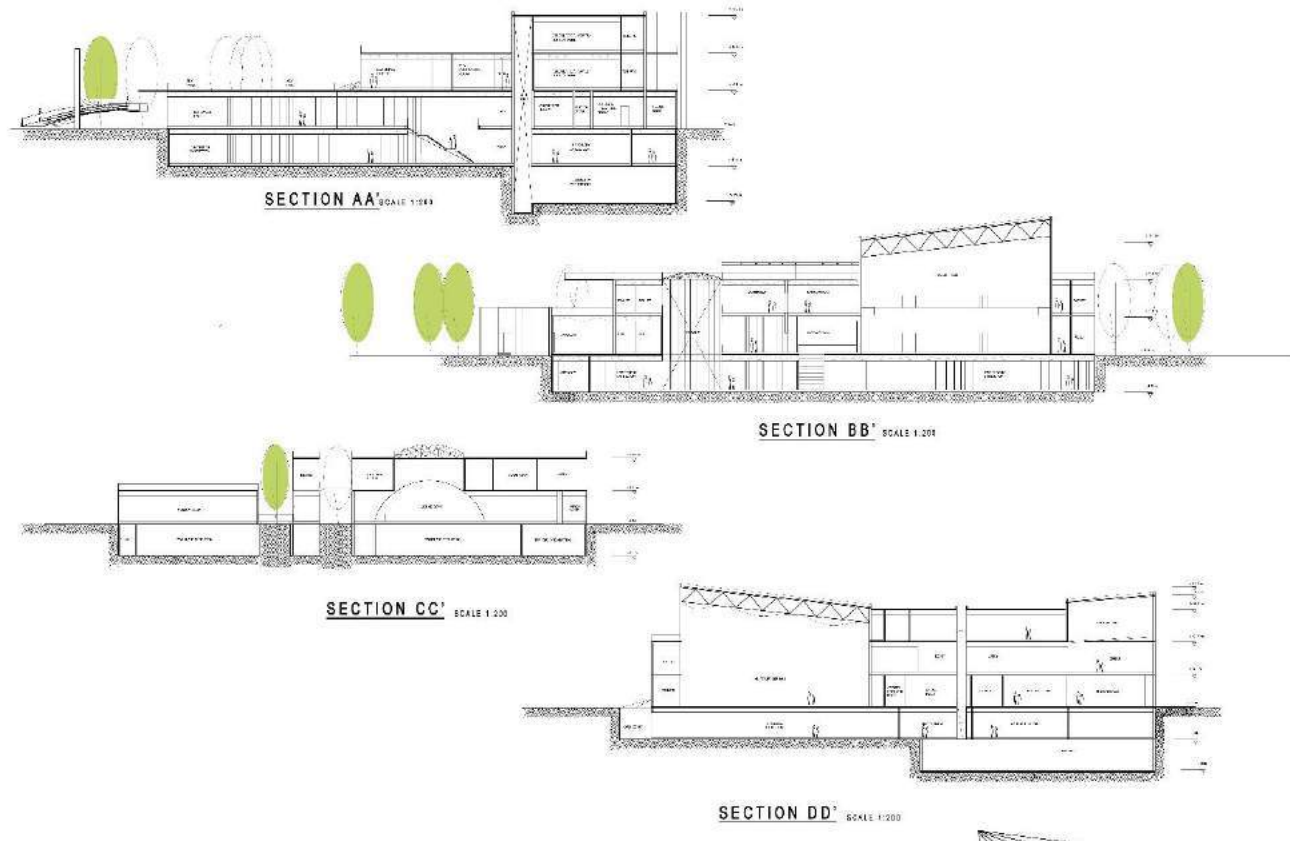
Client: BUDAPEST



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.



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

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.



PROJECTS

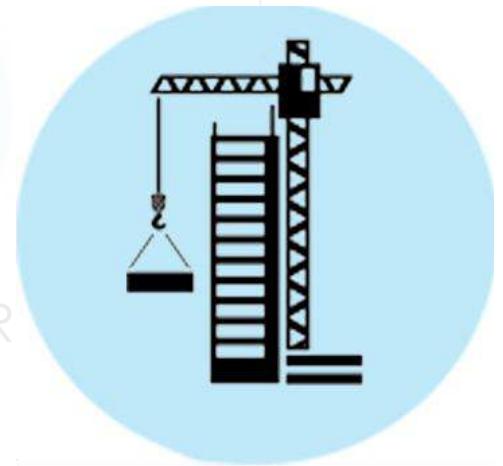
- **SHILPARAMAM**
- **ADITI GREENSCAPES**
- **AVILALA ECOLOGICAL PARK**
- **BAMBOO BRIDGES FOR DDA**
- **DAYALBAGH CONFERENCE HALL**
- **CGBMT HEADQUARTERS**
- **ANANYA HOMES**
- **VISHNUDHAAM TEMPLE**

INSTITUTIONAL



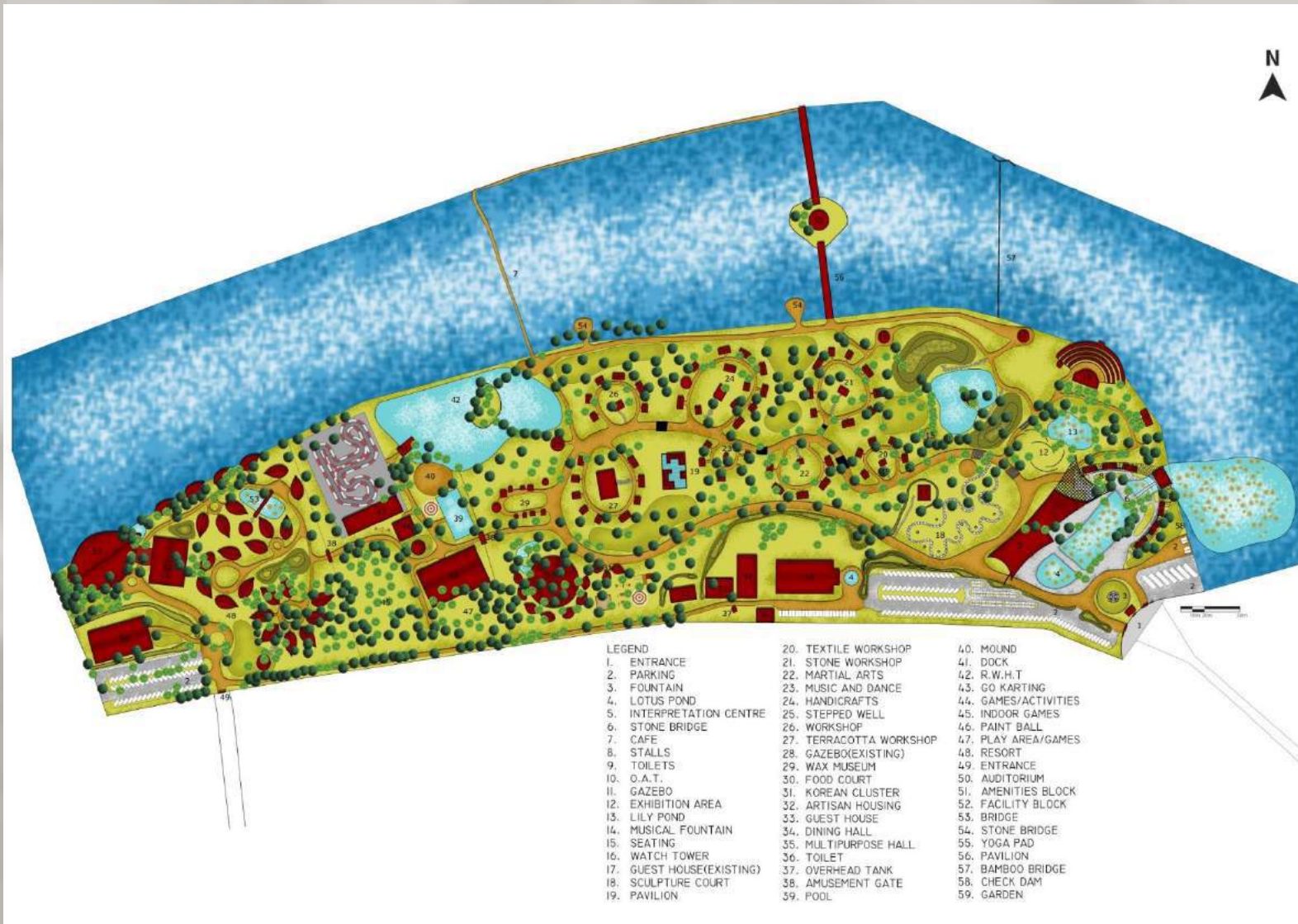
ELEMENTS

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.

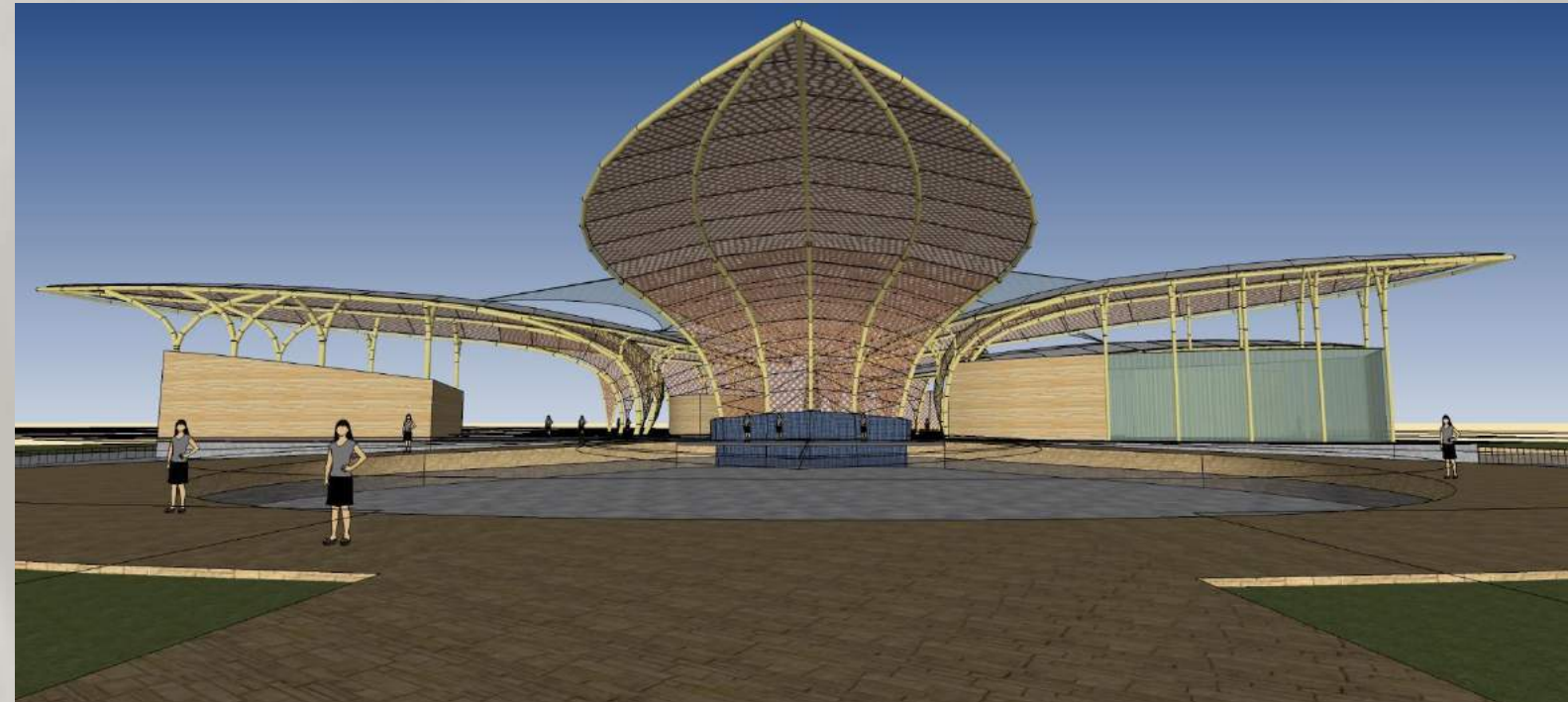
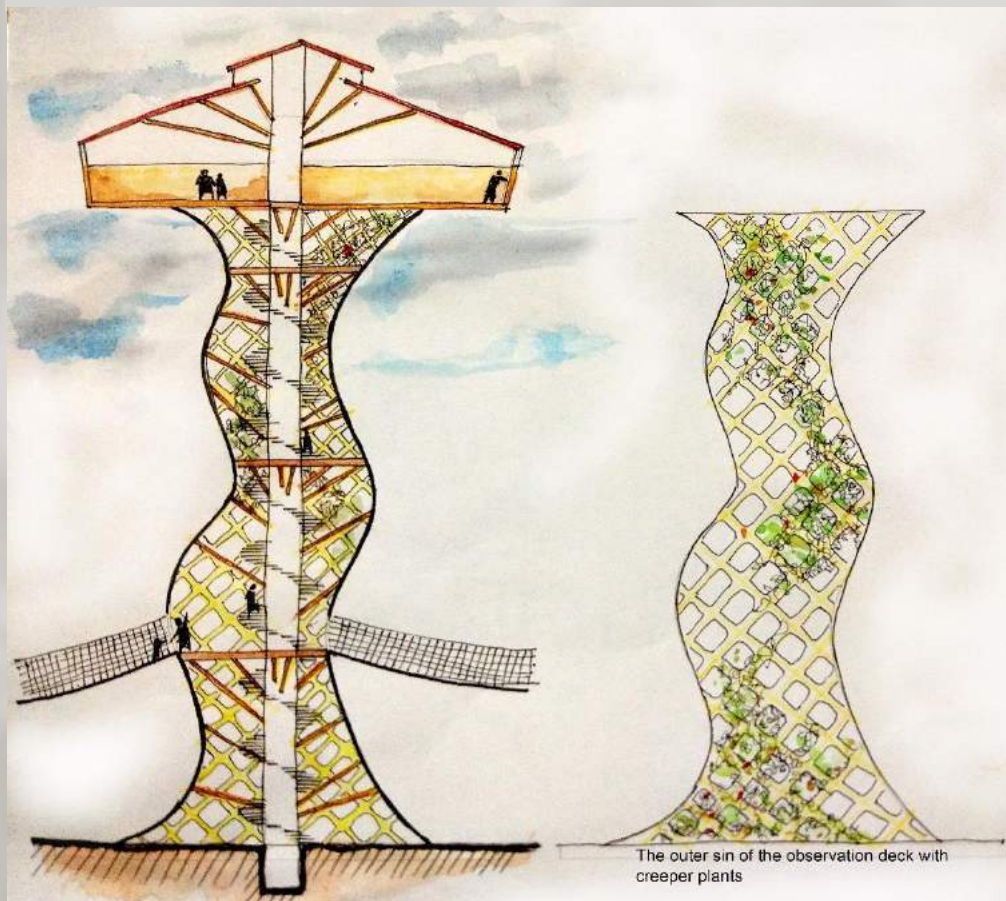


AWARDS

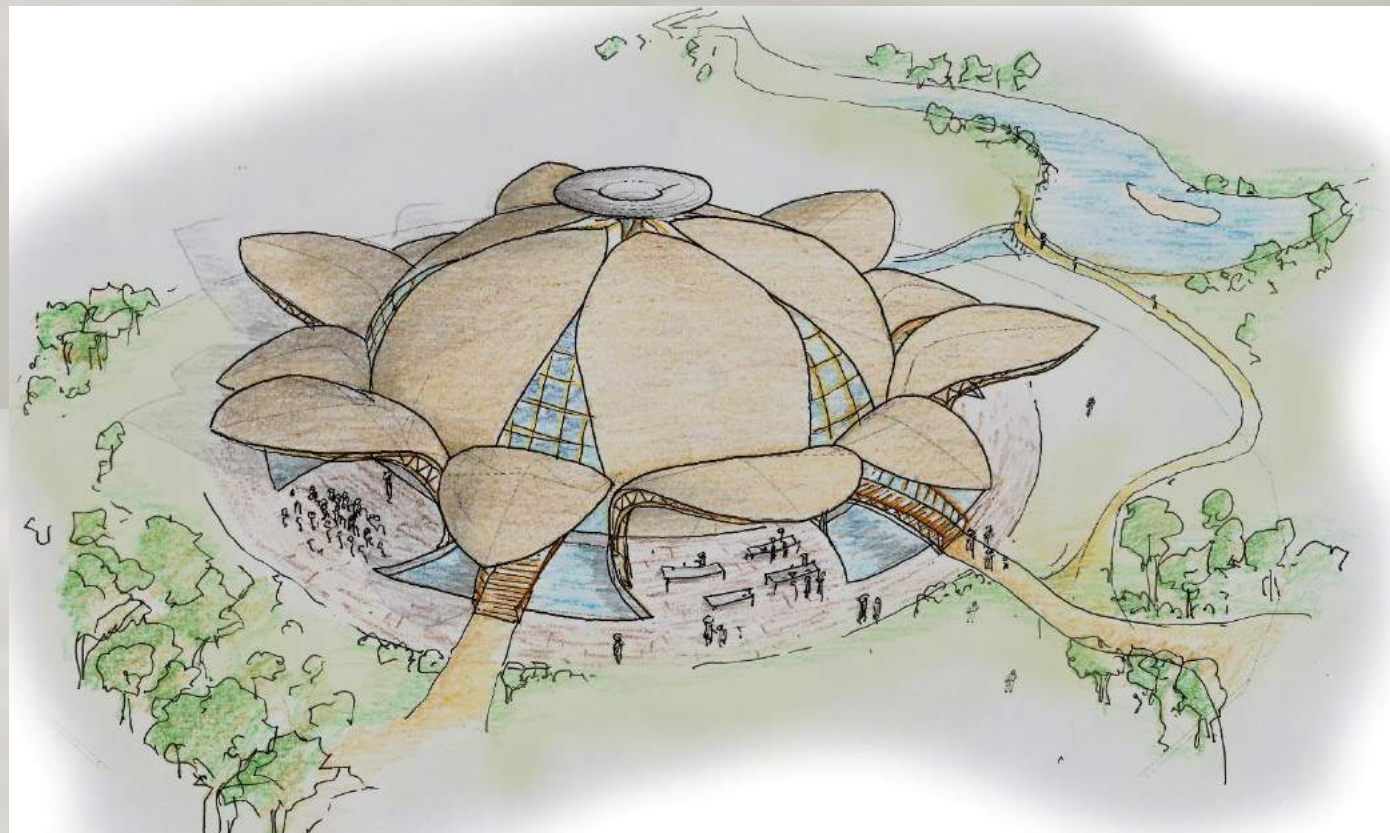
- **IIA Top 30 architects in India shortlisting-**
Nominated
- **Rethinking the future awards:**
Category – Housing(Concept) Certificate of 2nd award
- a **IGBC Green Homes Platinum Pre-Certification**, with maximum credits achieved

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'



TIME
SPACE
EXISTENCE
LA BIENNALE DI VENEZIA 2016
Palazzo del Cinema - Palazzo della Musica - Palazzo della Moda

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



"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

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