Symphony of the Bamboos

XI World Bamboo Congress, Xalapa, Mexico

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“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

- 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.

PANTRY AT RAJ BHAVAN
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.
"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 1930:182-3)
Thoughtful Impressions
Bamboo Architecture

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

Neeleman Manjunath, Principal Architect of Manasaram 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 Build 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 already demonstrated the bamboo could be a viable substitute and several other tradition for housing and building sector and several in works. In India, many new architects have taken on the bamboo as a viable alternative for construction material.

Bamboo conservator, Ar. Neelam Manjunath, architect of Manasaram, She lives by example. It shows in Bangalore case elements of nature, which have been an artefact of Five Elements. Here too, in its given utmost precedence her dwelling.

Right from purs engineering days at Architecture, Lucknow, she was fascinated by bamboo and chose it as a material through her projects. I express my work very well society through this material with my interest and bamboo has obtained me in the field of architecture.

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.
WINDS OF CHANGE - PROJECTS!

- Residential
- Community
- Office
- Institutional
- Infrastructure
- Competition
- Ongoing
HOUSE OF FIVE ELEMENTS
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.
ONGOING PROJECTS

RESIDENTIAL COMMUNITY INSTITUTIONAL INFRASTRUCTURE COMPETITION ONGOING

OFFICE

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.
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.

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 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.

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.
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
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
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.
METRO STATION.
Bangalore
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

RESIDENTIAL

COMMUNITY

OFFICE

INSTITUTIONAL

INFRASTRUCTURE

ONGOING

COMPETITION

HOUSE OF HUNGARIAN MUSIC, 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 in vast courtyards.
Bamboo was used interactively within the architecture, which allowed the visitors themselves to create music with the material!

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<th>Innovation</th>
<th>New Technology, Process and practices</th>
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<tr>
<td>a</td>
<td>Debris: New age construction material. All the building debris used to make the retaining wall of the basement- Reuse</td>
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<tr>
<td>b</td>
<td>Light courts: Series of courts in basement. Natural lighting and ventilation</td>
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<tr>
<td>c</td>
<td>Ductal: Concrete wall around the earthfill with roots of existing trees.</td>
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• SHILPARAMAM
• ADITI GREENSCAPES
• AVILALA ECOLOGICAL PARK
• BAMBOO BRIDGES FOR DDA
• DAYALBAGH CONFERENCE HALL
• CGBMT HEADQUARTERS
• ANANYA HOMES
• VISHNUUDHAAM TEMPLE
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.
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
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.
“First they ignore you, Then they laugh at you, Then they fight you, Then you win.”

-- Mahatma Gandhi

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