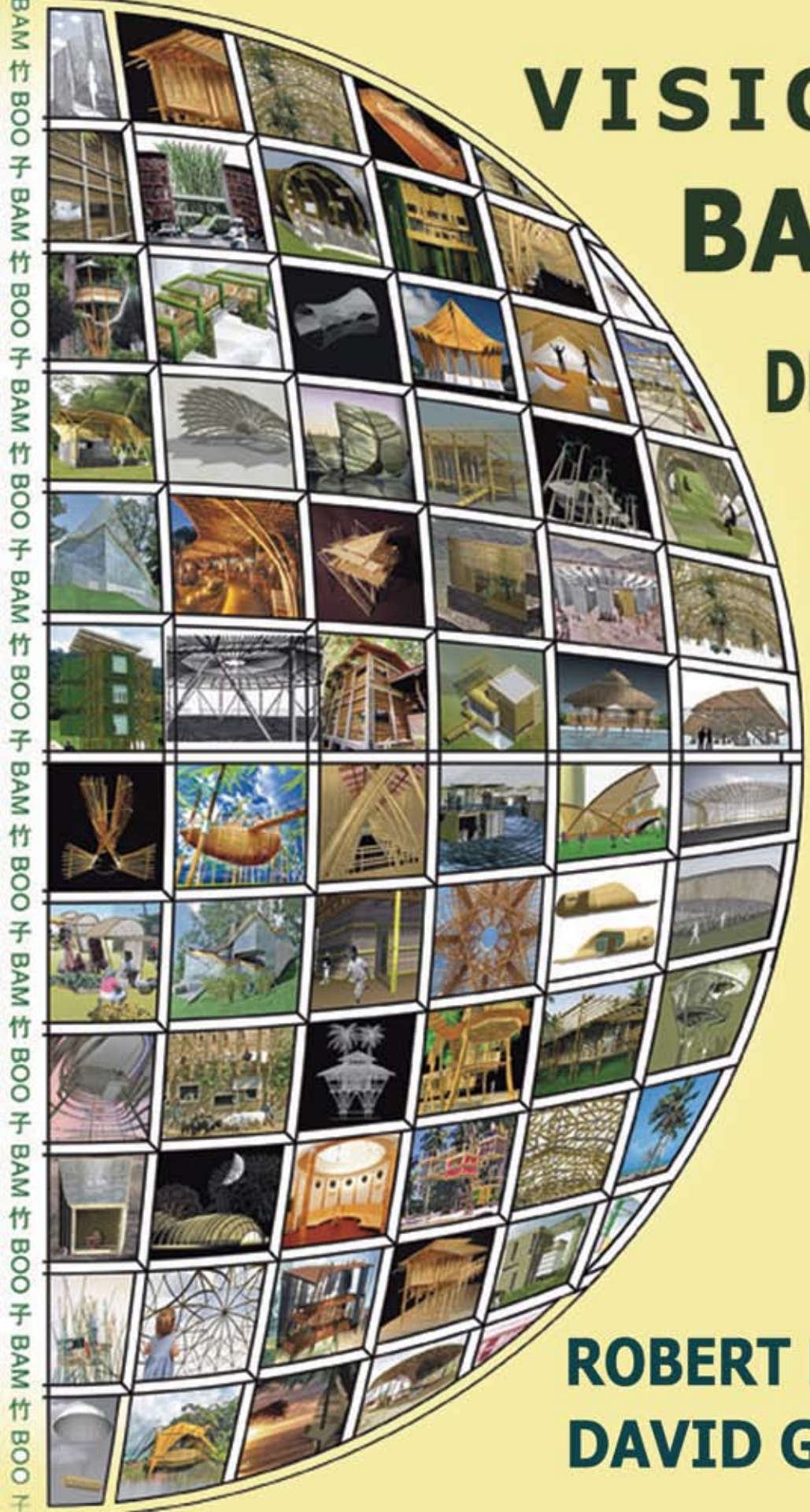


VISIONARY BAMBOO

DESIGNS FOR ECOLOGICAL LIVING

ROBERT HENRIKSON
DAVID GREENBERG

VISIONARY BAMBOO DESIGNS
FOR ECOLOGICAL LIVING

International Bamboo Building Design Competition

by Robert Henrikson and David Greenberg

TABLE OF CONTENTS

Giant timber 'guadua' bamboo for building construction at the Whispering Winds Bamboo Farm in Kipahulu, Maui, Hawaii

Build Your House of Grass

Why bamboo is the next green building material

by Robert Henrikson

The vast oceans and forests of our blue-green planet are awe inspiring. Temperate and tropical forests are the lungs of our planet. They breathe in carbon from the air, breathe out oxygen for our life. Forests call the rain, cleanse the air, circulate weather currents, regulate global climate.

Our vast breathing forests need to be restored. Humans have been cutting them to eat and to build. Now is our time to change what we eat and how we build. Returning to healthy eating means eating less protein from animals and cows, more from plants and even algae. This healthy choice means we reduce the earth's surface area needed to grow protein and cut carbon and methane emissions. This takes pressure off cutting forests. Restoring our health is restoring our forests.

Building from fiber waste and grass means using less trees and more plant and grass fiber. Bamboo is a giant grass. Some species grow stronger and harder than oak in just 5 years. Why wouldn't we want to build with a strong natural fiber that takes 5 years to grow instead of 20, 40 or 80 years?

The average family home, built from wood from trees, takes about an acre of forest (.4 hectares). The same home built from bamboo, takes only the size of the house itself, because bamboo grows so fast and so dense. This means we save 20 times the earth's surface area to grow our houses. This too, takes pressure off cutting forests. Building with bamboo is rebuilding our forests.

Imagine a bamboo house of grass in the trees along a breezy beach. A romantic dream only a few people get to live out in their lives, and a few more get to visit for a short while to remember how life can be in paradise

Today the first bamboo houses are being built in all kinds of climates for people who want to live in a bamboo house. These houses are large, strong, beautiful and environmentally sustainable, with all the amenities. They are way beyond the little house of grass on the beach, but still have the same feeling for those who live inside.

The next evolution is bamboo as structural material for all kinds of buildings in cities and towns, where most people live. These won't look like little bamboo houses.What will they look like?

The International Bamboo Building Design Competition was a call out to the world's architects, builders, designers and students to envision and design new bamboo buildings: Pick any category, any climate, and design buildings with structural bamboo.

Ever walk in a bamboo forest? As sunlight filters through the mist, the towering bamboo, arching overhead like a cathedral, clacks in the breeze, waving back and forth. Walk and breathe in any forest and feel the gratitude for your good fortune and remember the future of your children's generations breathing in the vast forests of our blue-green planet.

Sacred Bali Bamboo

International Bamboo Building Design Competition
Visionary Designs for Ecological Living

The first International Bamboo Building Design Competition was created in 2006 to develop new award winning designs for bamboo buildings, raise awareness of the use of certified structural bamboo for building code approved structures, and introduce architects, designers and builders to bamboo as a structural material.

Contestants registered from 64 countries and submitted 250 designs in 12 building categories such as family housing, urban buildings, emergency shelters, commercial and public buildings and even treehouses.

An international panel of 16 jurors selected the top 50 finalists. In the final round, the jury chose the overall 1st, 2nd and 3rd prizes. Criteria for judging were Utility (functionality), Strength (structural integrity), Beauty (aesthetic appeal), Concept and Design Development, Graphic Layout and Use and Expression of Bamboo.

Sponsors were Bamboo Living Homes and International Network of Bamboo and Rattan (INBAR).

50 Finalists came from these 25 countries: Austria, Brazil, Canada, China, Costa Rica, Denmark, Ecuador, France, Germany, India, Indonesia, Italy, Malaysia, Mexico, Netherlands, Peru, Portugal, Slovakia, South Korea, Spain, Thailand, Trinidad & Tobago, United Kingdom, United States, Vietnam.

The results of the competition are truly exciting and innovative, providing a fresh outlook for the possibilities for bamboo in a new green world.

Later in 2007 an installation of entries by the 50 finalists opened at an exhibition concurrent with Documenta in Kassel, Germany at the KunstHochSchule Design University. Four videos projected on two walls and two monitors showed 3d models and construction of these designs. Eike Roswag, first place winner, brought a sample beam from his Bangladesh project. (see photo below).

The show moved to Guangzhou, China and then to Beijing at the Great Hall of the People. It is our hope this show will continue to travel to museums and galleries around the world.

First Prize: Handmade School in Bangladesh, by Anna Heringer & Eike Roswag, Germany.

www.BambooCompetition.com

International Bamboo Building Design Competition
Top Four Prize Winners

FIRST PRIZE:
Handmade School in Bangladesh.

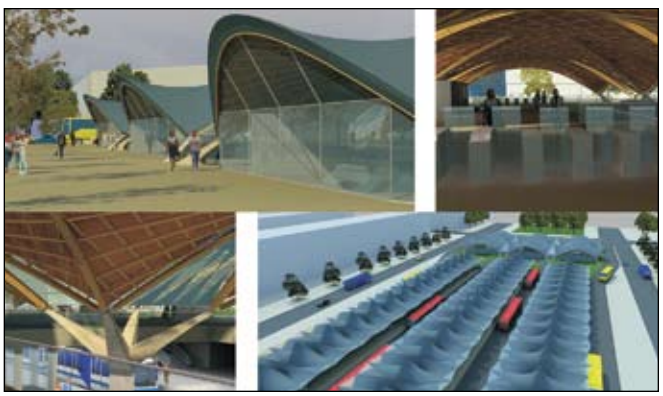
Anna Heringer & Eike Roswag: Germany.

This school was hand built in Bangladesh with the community support of craftsmen, pupils and teachers guided by a European architects and students. The aim was to improve building techniques, while maintaining sustainability, strengthening regional identity.

SECOND PRIZE:
Wind and Water Cafe.

Vo Trong Nghia & Nguyen Hoa Hiep: Vietnam.

This Café is located in Binh Duong, Vietnam and is built to receive as much cooling as possible from the area's prevailing winds. Bamboo is used structurally and decoratively throughout, with wood from the water coconut used as roofing.



THIRD PRIZE:
Transport Station in Bogota.

Luis Alejandro Valencia Ojeda: Spain.

This bus exchange station is suggested for the tropical climes of Bogota, Colombia. The beautiful curves of the bamboo ceiling provide shade and comfort for waiting passengers. Ball and socket joints are used for connecting the bamboo poles.

APPRECIATION PRIZE:
Pavilion.

Marek Keppl & Toma Korec: Slovak Republic.

Using the parabolic curve and bamboo's natural flexibility to create a lightweight structure and a pleasant, light filled environment for people to gather. Rainwater runs down the outside surface of the membrane on the conic cylinders and into retaining canals in the foundation.

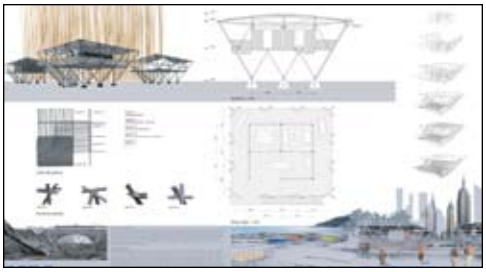
International Bamboo Building Design Competition
12 Building Category Winners

01 FAMILY HOUSES
Caretakers House. ***SPG Architects: USA.***

This small home was built as a caretaker's house in the jungles of Costa Rica. The lower floor, built of concrete and stucco, grounds the house and protects from the moisture of the rainforest floor, but it is the open and airy bamboo upper floor that gives the house its natural Central American feeling.

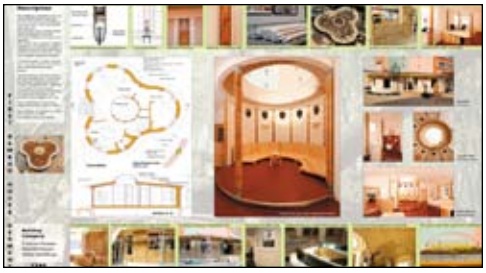
02 CUSTOM HOUSES
Single Family Residence. ***Gabriel Gallagher & Andrew Van Leeuwen: USA.***

This 3000 sq. ft. custom home is designed for the Midwest heartlands, with a view of rolling hills and changing seasonal color. Bamboo is used in an array of applications, ranging from curvilinear ceiling structures to undulating screens.



03 AFFORDABLE HOUSING
Urban Nature. ***Cornelius Lensing, Jana Hildebrandt & Aleksandr Burdzenidze: Germany.***

This structure is a simple, easy to erect living space meant for tropical and subtropical climates. The sheltered area is raised to protect from floodwater, animals, and moisture from the ground. Bamboo is used for the structural poles.



04 HYBRID HOUSES AND BUILDINGS
Bamboo Strawbale House. ***Susanne Koerner & Tilman Schaeberle, Germany.***

This first permanent structure in Germany with a bamboo structure and strawbale walls. Bamboo provides load-bearing and structure, while strawbale covered in clay, provides thermal insulation. The green roof provides a place for plants and small animals.

05 TREE HOUSES AND POLE HOUSES
Cocoon Housing for Bali. ***Joerg Hanson: Germany.***

These Cocoon Houses are designed as lodges for an environmental center on Bali. They are vibrantly organic in form and make extensive use of bamboo throughout their structure. Like growing forest forms, the curviness of the cocoons makes them almost blend into the forest they are built in.

06 RESORT HOUSES
Asian Water Villa. ***I. Made Gde Dharmendra: Indonesia.***

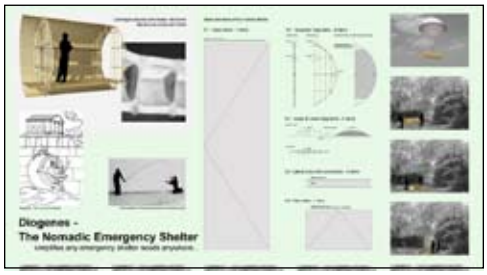
This structure is proposed for the Over Water Villa in Malaysia. The design uses organic curves to keep things easy on the eyes and easy on the mind. Bamboo is the primary material, structurally and decoratively, and Balinese style grass is used for the roofing.

International Bamboo Building Design Competition
12 Building Category Winners

07 TEMPORARY, PORTABLE, EMERGENCY RELIEF

Diogenes. ***Stephan Schuler, O. Sarica & A.Wilheim: Germany.***

This temporary shelter design is easy to assemble and requires nothing more than hemp twine to tie the bamboo poles together. It can be flown into disaster areas and takes up very little space when disassembled. A flexible bamboo mat serves as wall cover.



08 URBAN BUILDINGS

Office Building. ***Jaigopal Govinda Rao: India.***

Built in India in 2002, this office building uses 70-80% less steel than a typical building like it and makes wide use of bamboo. There are ecologically sensitive features in this building, such as a rainwater catchment pond, and an anaerobic natural wastewater treatment system.

09 COMMERCIAL, PUBLIC, INFRASTRUCTURE

Handmade School in Bangladesh. ***Anna Heringer & Eike Roswag: Germany.***

This school was built in Bangladesh with community support of craftsmen, pupils and teachers guided by European architects and students. The aim was to improve building techniques, while maintaining sustainability, strengthening regional identity.

10 PAVILIONS, CONFERENCE CENTERS, ROOFS

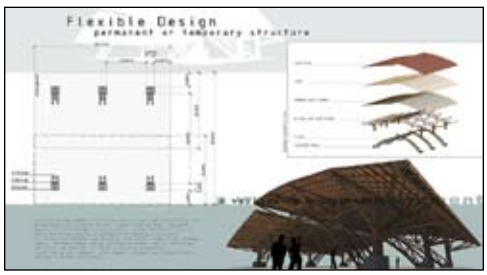
Wind and Water Cafe. ***Vo Trong Nghia & Nguyen Hoa Hiep: Vietnam.***

This Café is located in Binh Duong, Vietnam and is built to receive as much cooling as possible from the area's prevailing winds. Bamboo is used structurally and decoratively throughout, with wood from the water coconut used as roofing.

11 PARK AND GARDEN STRUCTURES

Flexible Design. ***Rafael Penteado Paolini: Brazil.***

Based on the idea of two bamboo culms curving towards each other, this space is created out of bamboo poles attached to concrete foundations with steel connectors. This design allows for the creation of different sized spaces, which can drastically change the usage of the space.



12 STRUCTURAL ART INSTALLATIONS

Starry Bamboo Mandala. ***Gerard Minikawa: USA.***

Part Sacred Space, Part Jungle Gym, Part Aerial Rig. Built with guadua angustofolia, this giant mandala was 11 meters tall. Built for the Burning Man Festival, 40,000 particpants in Black Rock Desert, Gerlach Nevada USA, Aug. 29-Sep. 5, 2006. The installation was taken down after the event.

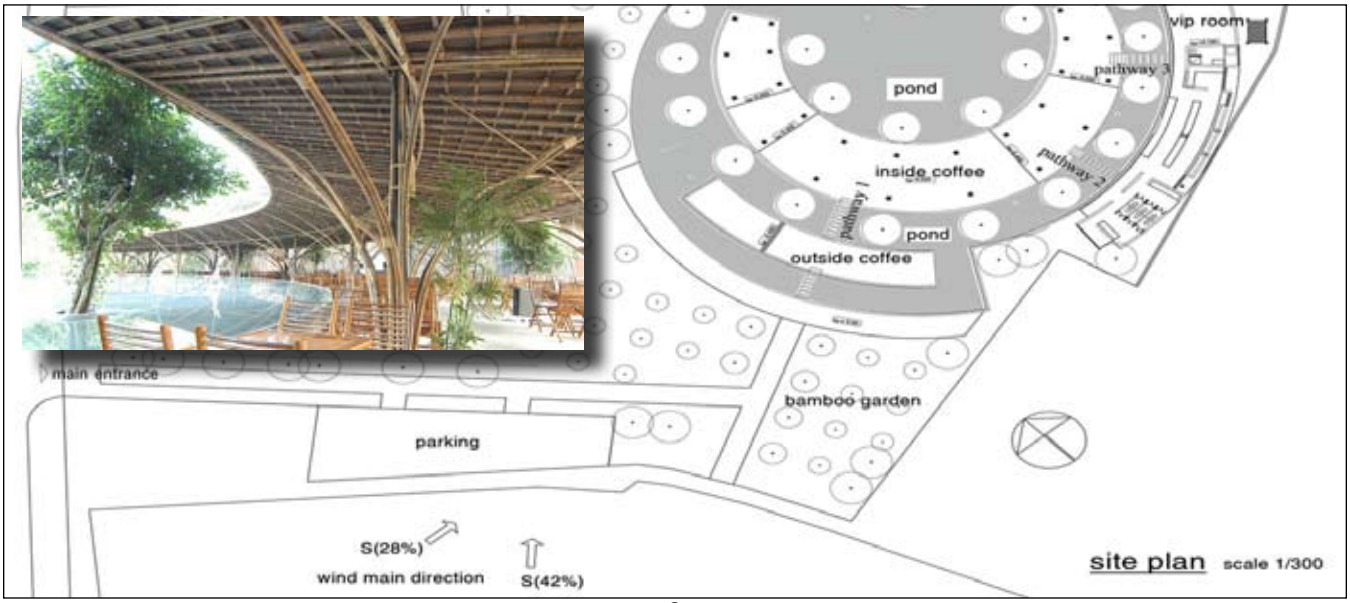
Wind and Water Café in Vietnam

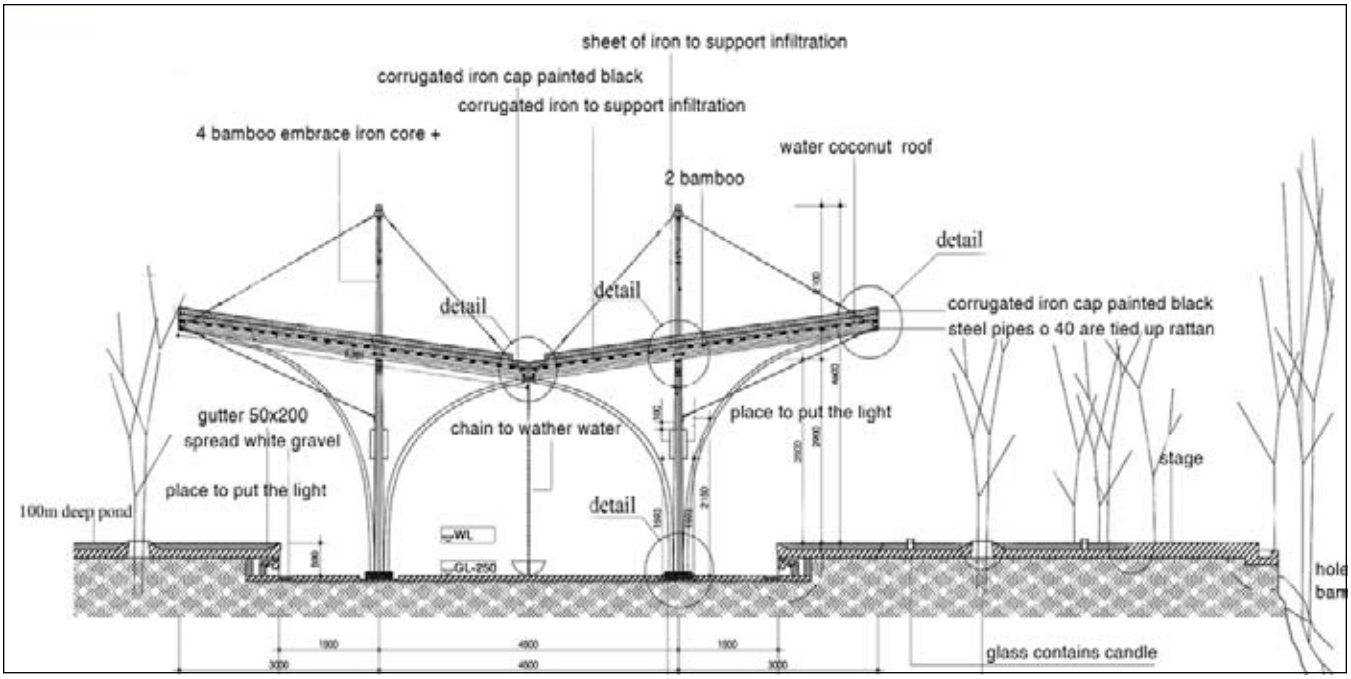
Second Prize Winner, International Bamboo Building Design Competition

Vo Trong Nghia, Principal Architect and Nguyen Hoa Hiep

A one hour drive north of Saigon (Ho Chi Minh City) will take you to the Wind and Water Cafe. Here in Binh Duong province, Vietnam's booming industrial park region, is a cafe oasis. Surrounded by bamboo gardens, pools and fountains, Wind and Water Cafe is a refreshing afternoon stop for tea, coffee, drinks and conversation.

Vo Trong Nghia, an architect and entrepreneur, designed with natural and local building materials, using thick structural bamboo poles with a water coconut roof. The 1200 m2 cafe has a crescent shaped design around a water pond, on a 3700 m2 site. He designed it using the wind and the water to replace air conditioners.





Vietnam is hot and humid, especially South Vietnam. It has two seasons, dry and wet. Wind is an energy source which is natural and unlimited, while water works as a cooling machine for the building. Wind and water are used as the main concepts, offering cooling spaces which suit the Vietnamese lifestyle well.

The intention was to create a green building that accomodates the natural climate and is well structured. Wind is distributed evenly across the structure, blowing from south and west, and the V-shape of the roof is designed to collect wind.

In Vietnam, vast areas of tropical forests were killed through use of defoliating chemicals during the war years. People turned to bamboo as a means of reforesting the landscape and stabilizing eroding slopes. Today, bamboo covers much of the country.

Bar Phong Tra

Next to the Wind and Water Café. By Vo Trong Nghia

Wind and Water Cafe, completed in 2006, brought customers during the day, but Vo Trong Nghia needed a new attraction for people at night. He designed and built a nightclub and bar on the same property.

This huge dome looks as if it floats on a water pond, and the entrance is by a walking bridge. Bar Phong Tra has become a popular nightclub destination, with cars and limos from Saigon lined up along the road.

The dome was built out of bamboo poles, then covered with a thatched roof. Vietnamese timber bamboo, bambusa stenostachya, was the first bamboo pole to be certified for the International Building Codes. These poles are very hard wood and are 3-4" diameter with thick walls.

Inside, Bar Phong Tra is an expansive three story open structure with good acoustics for live music. In the afternoon before opening for the evening, the architect describes to visitors how the unusual design and experience has attracted visitors.

International Bamboo Building Design Competition
List of Bamboo Competition Exhibits

100. Handmade School in Bangladesh.
101. Handmade School in Bangladesh.
Anna Hering Eike RoswagToma Korec
102. Wind and Water Cafe in Vietnam.
103. Wind and Water Cafe in Vietnam.
Vo Trong Nghia & Nguyen Hoa Hiep: Vietnam.
104. Transport Station for Bogota.
105. Transport Station for Bogota.
Luis Alejandro Valencia Ojeda: Spain.
106. Pavilion for Slovakia.
Marek Keppl & Toma Korec: Slovak Republic.
107. The Life Market for Sri Lanka.
Eric W. Halbur: USA.
108. Caretakers House for Costa Rica.
SPG Architects: USA.
109. Huevo Duro for Haiti.
B. Catanzaro & M.R. Putzmann: Germany.
110. The Organism's Life for Mexico.
111. The Organism's Life for Mexico.
Ruben Ramirez: Mexico. (ken)
112. Cozy Breeze Bridge for Hong Kong.
113. Cozy Breeze Bridge for Hong Kong.
Yip Wai Ngai (Ken): Hong Kong.
114. Diogenes Nomadic Shelter.
115. Diogenes Nomadic Shelter.
S. Schuler, O. Sarica & A.Wilheim: Germany.
116. Asian Water Villa for Malaysia.
117. Asian Water Villa for Malaysia.
I. Made Gde Dharmendra: Indonesia.
118. Cliff Hangar for Sichuan China.
Cheung Kwok Ching: Hong Kong.
119. Connections Roof for Montreal.
Wehran Gharaati & Andi Stvuga: Canada.
120. Bamboo Strawbale House.
121. Bamboo Strawbale House.
Susanne Koerner & T. Schaeberle, Germany.
122. Urban Nature.
C. Lensing, J. Hildebrandt, A.Burdzenidze: Germany.
123. Super Flex House.
Soren Korsgaard: Denmark.
124. Coconut Resort Houses.
125. Coconut Resort Houses.
A. Grassi, M. Annoni & R. Zilli: Italy.
126. Flexible Design.
127. Flexible Design.
Rafael Penteado Paolini: Brazil.
128. Sprouting Emergency Settlement.
129. Sprouting Emergency Settlement.
Chen An Fei: China.
130. Attic-3 Treehouse.
Lidewij Spitsauis & E. Erasmus: Netherlands.
131. Starry Bamboo Mandala in USA.
Gerald Minakawa: USA.
132. Community Centre in Oaxaca.
133. Community Centre in Oaxaca.
Jean Bolivar: Austria / Mexico.
134. Bamboo Fashion House.
Chan Chee Hau: Malaysia.
135. MAS- Caribbean Performance Art.
Lisa Rajkumar-Maharau: Trinidad & Tobago.
136. Fractal Pavilion.
137. Fractal Pavilion.
Lasef Md Rian: South Korea.
138. Breathe-Skin Custom House.
139. Breathe-Skin Custom House.
Chen Chen & Liu Xi: China.
140. Evolving Shoot Pavilion.
141. Evolving Shoot Pavilion.
Laode M. Abdi: Indonesia.
142. Palo Monte Centre for Havana.
143. Palo Monte Centre for Havana.
Ben Cowd & Sara Shafiel: United Kingdom.
144. New Dai Minority House.
145. New Dai Minority House.
Wang Uing: Harbin, China.
146. Thai Hale in Maui Hawii.
147. Thai Hale in Maui Hawaii.
David Sands & Jeffree Trudeau: Hawaii.
148. The Hooch Treehouse.
Jo Sheer: USA.
149. Guadua Housing in Costa Rica.
Mauricio Herrera Mora: Costa Rica.
150. Tree Pod.
Terry Hon-Tai Sin & Ventzislav Pavlov: Canada.
151. Bamboo Pole House.
Mark Kline: USA.

International Bamboo Building Design Competition
List of Bamboo Competition Exhibits

152. Linx House Prefab Portable.
153. Linx House Prefab Portable.
James Patrick Petras: USA.
154. Inspirations Office Building in India.
155. Inspirations Office Building in India.
Jaigopal Govinda Rao: India.
156. Markethall Pungue in Mozambique.
Sven Detering: Germany.
157. Architect's House for Netherlands.
Anna Brodowska & Dmitri Van Wezel: Netherlands.
158. Venilale Center for East Timor.
Ben Spencer & Brian Gerich: USA.
159. Nomad Water Shelter for Botswana.
Felipe Carrasco: Chile.
160. Single Family Home for US Midwest.
161. Single Family Home for US Midwest.
Gabriel Gallagher & Andrew Van Leeuwen:USA.
162. Shell Bungalow for the Amazon.
163. Shell Bungalow for the Amazon.
V.P.H. Dulanto & M.G.T. Yupanqui: Peru.
164. Bamboo House for Anji.
165. Bamboo House for Anji.
Chen Feng, Howie Gu & Joy Chen: China.
166. Bamboo Bridge for London.
167. Bamboo Bridge for London.
Michael J. Cady: USA.
168. Grow Home.
Steven Lombardi: USA. Joy Chen
169. The Leaf House for Brazil.
Daniel Meister: Germany.
170. Bamboo House Above Water.
171. Bamboo House Above Water.
Yin Song Nan: China.
172. Clam Shell Roof Structure.
173. Clam Shell Roof Structure.
Barney Paul Bonner: U.K.
174. Bamboo Diamonds Resort.
175. Bamboo Diamonds Resort.
Joseph Cory: Israel.
176. A Living Hut.
177. A Living Hut.
Georges Kachaamy & Kentaro Honma: Japan.
178. Rhythmic Living Tensile House.
179. Rhythmic Living Tensile House.
Natnapa Sae-Lim, Patpiya: Thailand.
180. Tree House.
Dan William Armfield: New Zealand.
181. Eco-Lodge Lumahai for Kauai Hawaii.
Duncan Lucas Wekesser: USA.
182. Bamboo Roof Wave in Maui Hawaii.
David Sands: USA.
183. Inside Yet Outside Pavilion.
Andrew Amara: Uganda.
184. Evolution Portable Structure.
185. Evolution Portable Structure.
Giorgio Traverso: Italy
186. Woven House for Southeast Asia.
187. Woven House for Southeast Asia.
Soren Korsgaard: Denmark.
188. Dance of the Foliage.
Gao Lei: China.
189. Chi'bagoda Perma Yurt.
Joshua Dolittle: USA.
190. Hybrid House for Cold Regions.
191. Hybrid House for Cold Regions.
Magdalena Golebiewska: Poland.
192. Cocoon Housing for Bali.
Jeorg Hanson: China/Germany.
193. Bamboo Pavilion.
Scott Crawford: USA.
194. The Great Jellyfish Pavilion.
Ricardo Vasconcelos & P. Sananikone: France.
195. Babahoyo House for Ecuador.
Esteban Cervantes: Ecuador.
196. Guadua Guest House.
Christophe G. Antoine: France.
197. Artist Community for Hong Kong.
Tsoi Ho Fai: China.
198. Octopus Event Tent for Festivals.
Andra Gross: Hungary.
199. Contemporary Bamboo Housing.
Gau Designs: Quebec, Canada.

Handmade School in Bangladesh

A school – handmade by local craftsmen, pupils and teachers together with a European team of architects, craftsmen and students.
The philosophy of METI (Modern Education and Training Institute) is learning with joy. The teachers facilitate the children to develop their own potential and to use it in a creative and responsible way. The building reflects these ideas in terms of materials, techniques and architectural design. The aim of the project was to improve existing building techniques, maintaining sustainability by utilising local potential and strengthening regional identity.

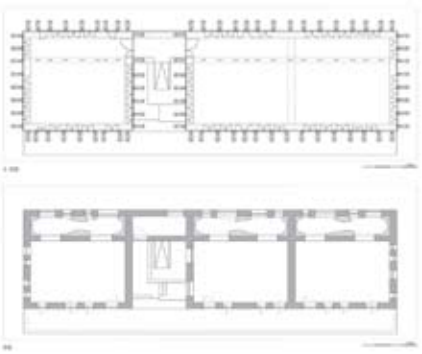
»We believe that architecture is more than shelter. It is intimately connected with the creation of identity and self-confidence. And this is the basis of development.«

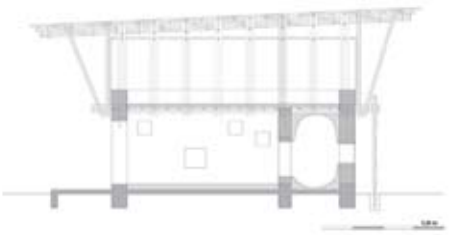
Utilized Materials
83 m³ brickwork for foundation and veranda
350 m² damp proof course
270 m³ loam-straw mix for walls, ceiling, floors, caves
400 to loam
230 kg steel for poles
2.300 bamboo poles for ceiling, roof, facade

Utilized Tools
4 Weller spades / 2 pitchforks / 3 drill machines / 4 hammers / 2 soldering metals saws tension / belts / 2 cows and 2 water buffalos / baskets

Anna Herringer & Eike Roswag *Handmade School in Bangladesh* Germany

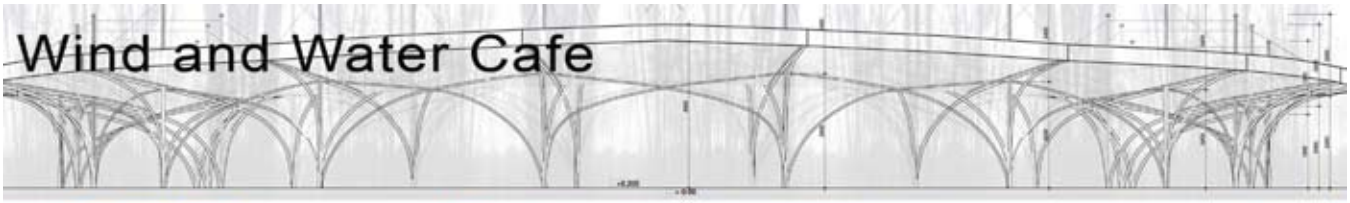
The building was constructed together with local labourers from traditional locally available materials – earth and bamboo. Local techniques were adapted and improved for better durability and to fit the dimensions of the school building. The ground floor walls, made of compacted earth using a technique similar to cob-walling, serves as a support for the upper storey made of bamboo, consisting of a triple-layer floor construction and a bamboo framework spanning perpendicular to the building. The bamboo construction was developed using 1:1 prototype test rigs in Germany and Bangladesh. The elevation cladding, made of bamboo strips, is mounted on a timber supporting construction. Bamboo panels are spanned between the floor joists and filled with a straw-clay mixture. The connections between bamboo rods are anchored with steel dowels and bound with nylon rope. No special machinery was required - with the exception of holes bored using an electric drill, all work was undertaken by hand.

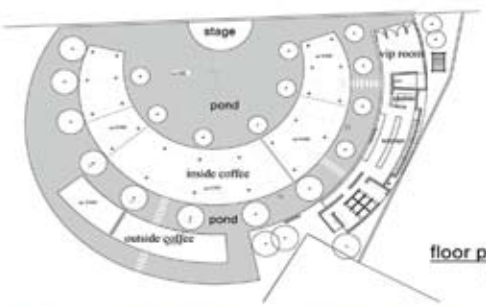




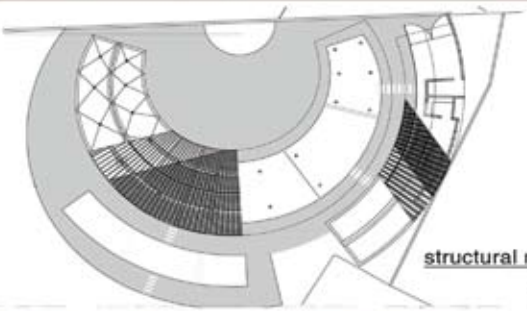
Anna Herringer & Eike Roswag *Handmade School in Bangladesh* Germany

Wind and Water Cafe

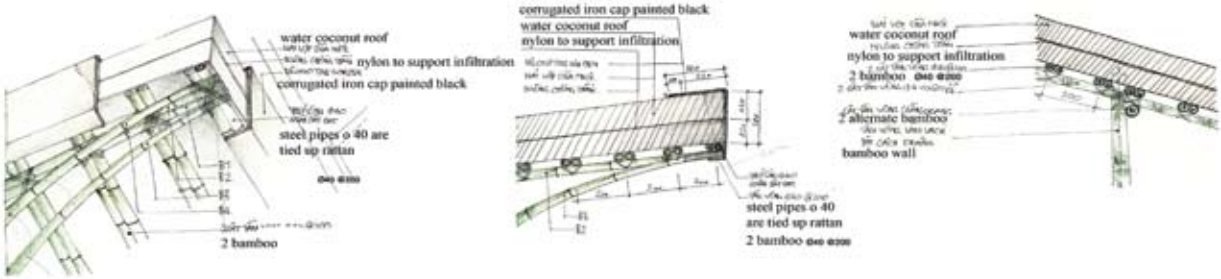




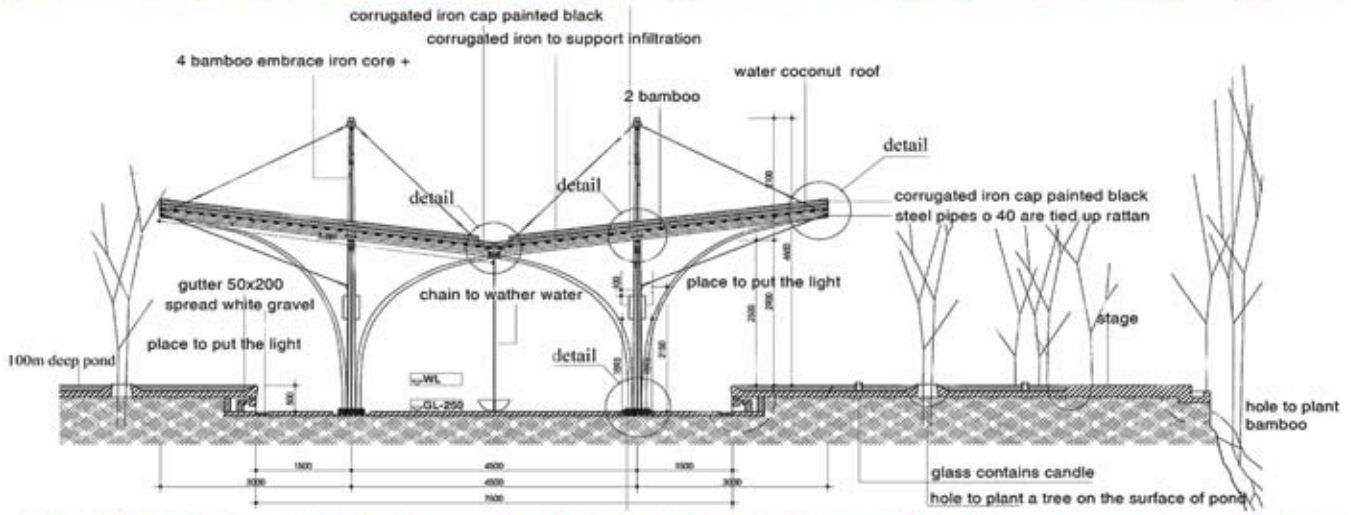
floor plan
scale 1/300



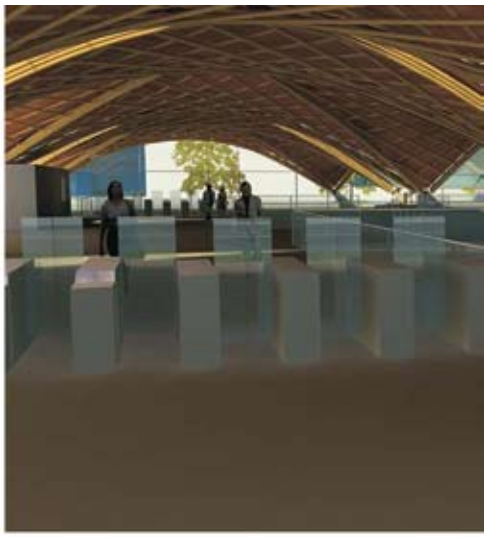
structural roof plan
scale 1/300

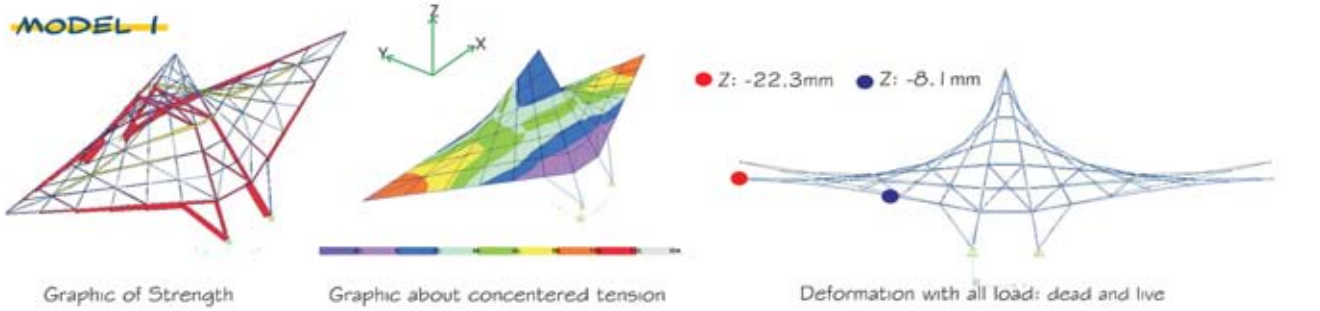


Vo Trong Nghia & Nguyen Hoa Hiep *Wind and Water Cafe* Vietnam



Vo Trong Nghia & Nguyen Hoa Hiep *Wind and Water Cafe* Vietnam

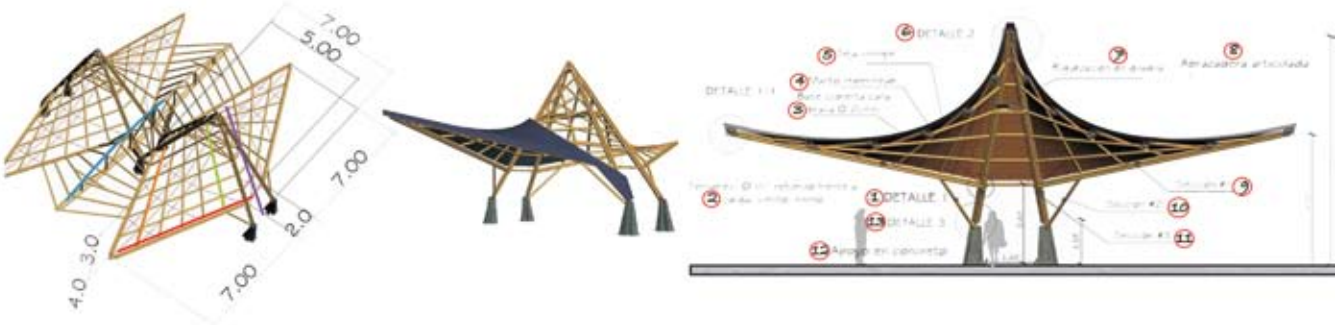


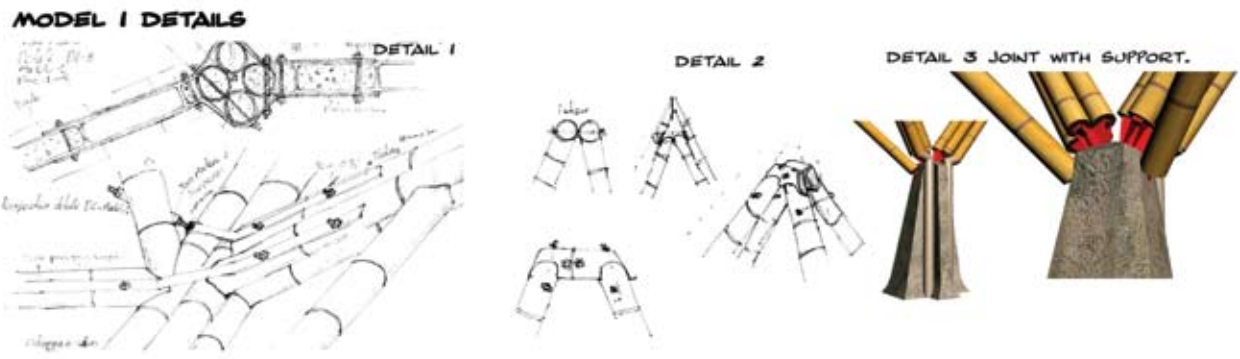


Graphic of Strength

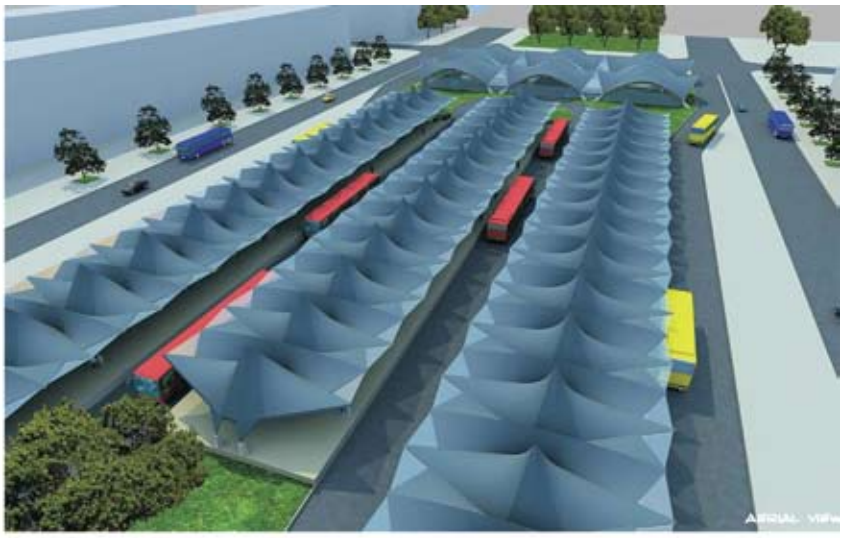
Graphic about concentered tension

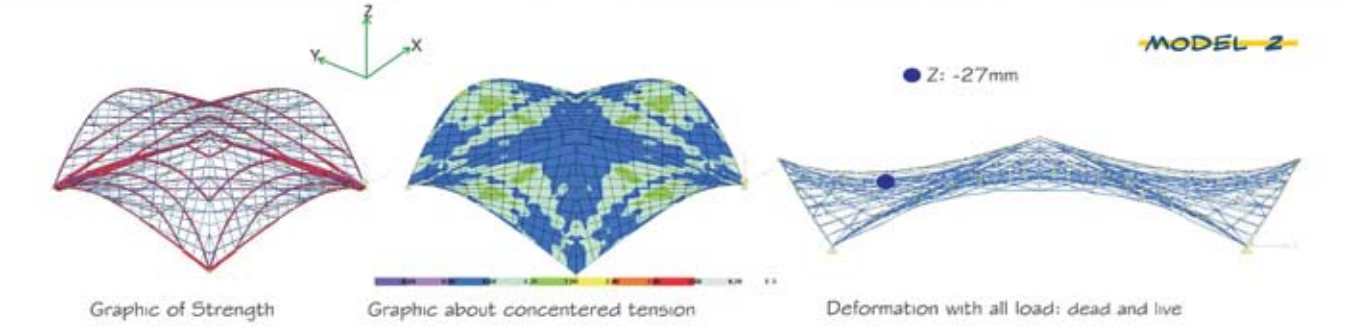
Deformation with all load: dead and live





Luis Alejandro Valencia Ojeda *Transport Station for Bogota* Spain

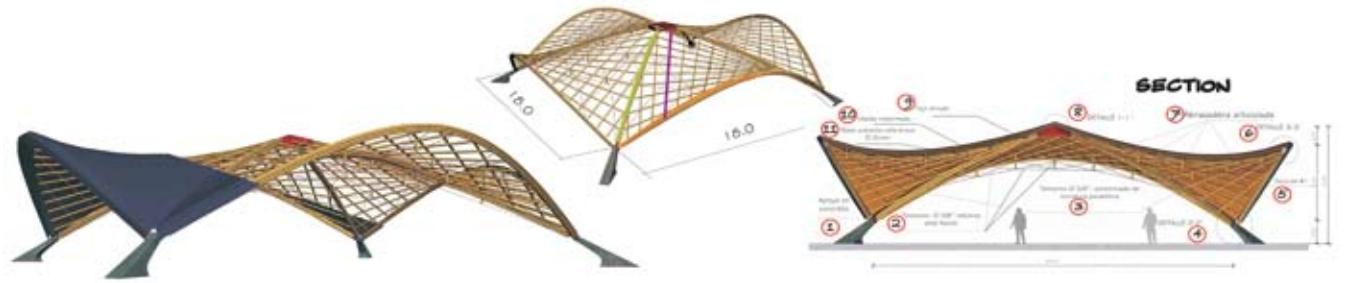




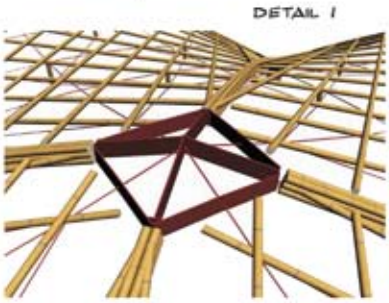
Graphic of Strength

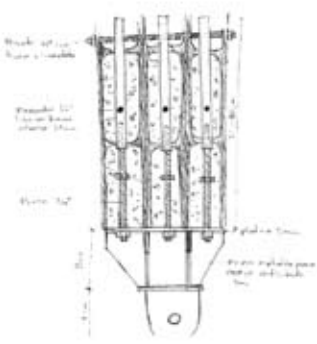
Graphic about concentered tension

Deformation with all load: dead and live

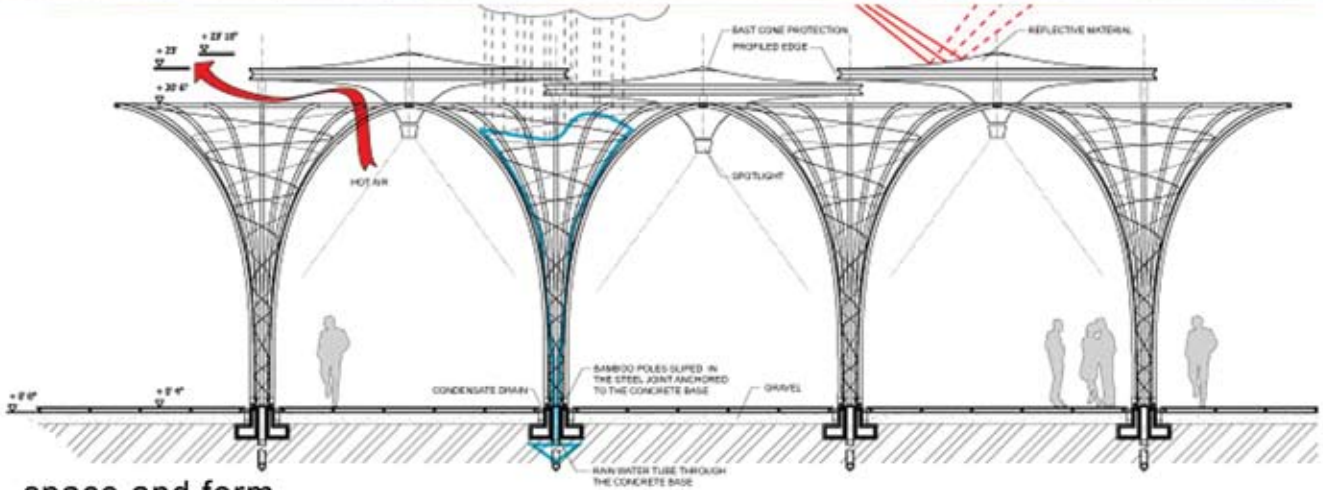


MODEL 2 DETAILS





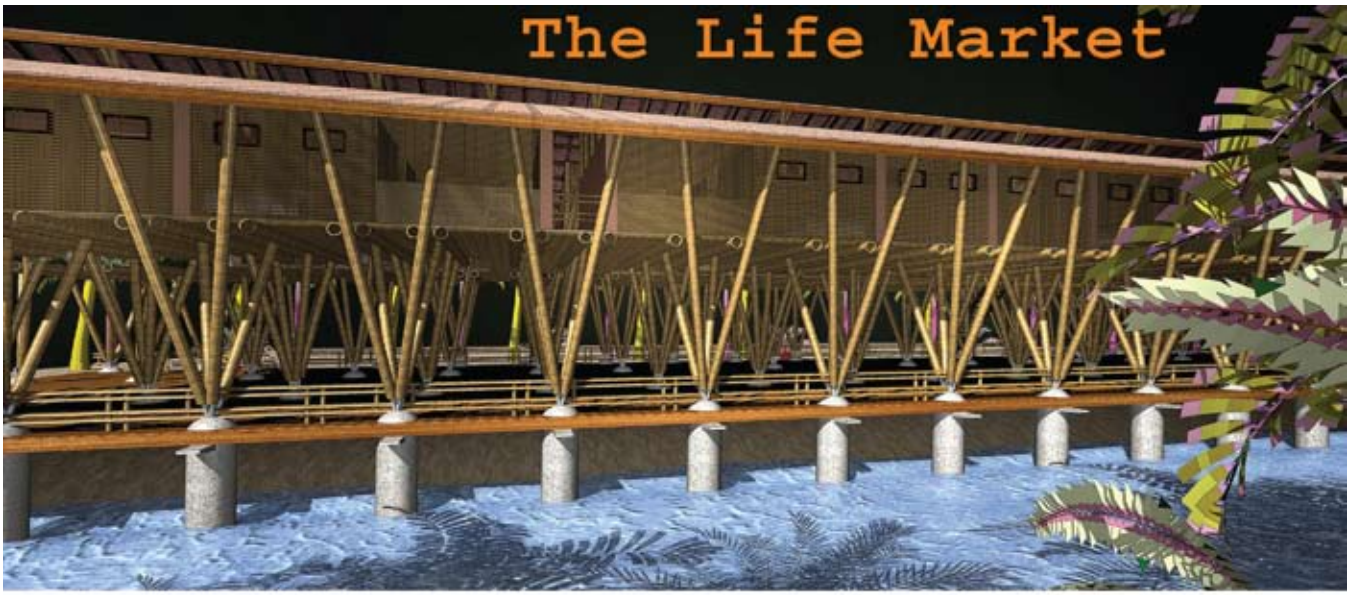
Luis Alejandro Valencia Ojeda *Transport Station for Bogota* Spain

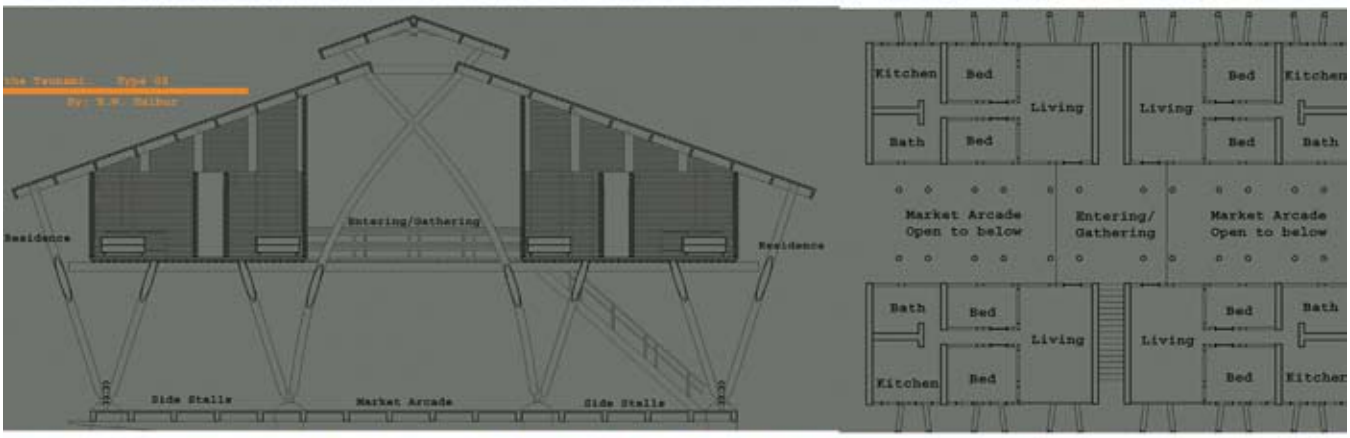


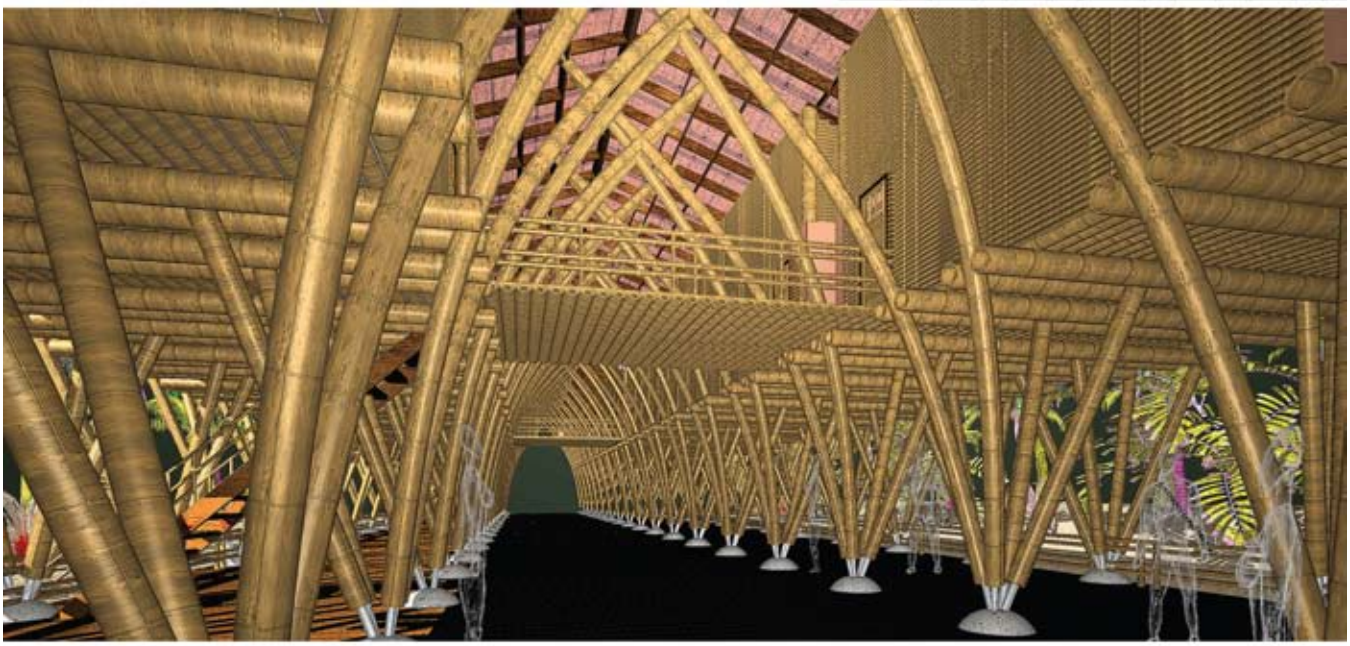
space and form

The aim was to gain a space, where roof,walls and support construction would work as one. Stretching over the people, sheltering them and giving them the pleasure of experiencing different sort of environment.

Marek Keppl & Toma Korec *Pavilion* Slovak Republic







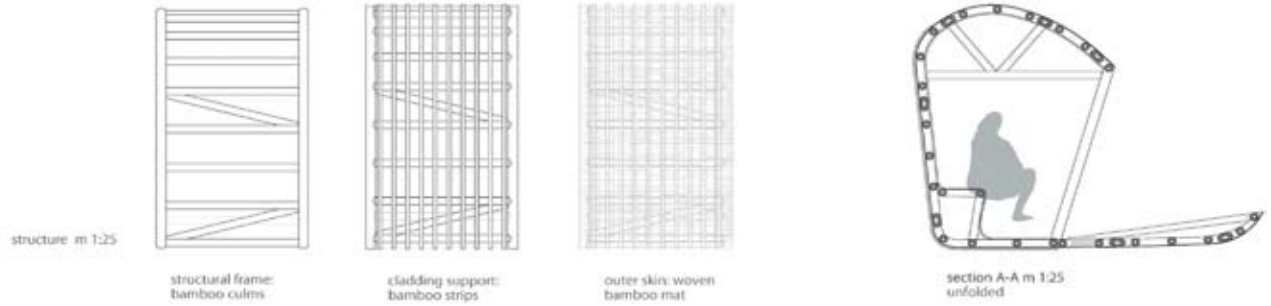
Eric W. Halbur *The Life Market for Sri Lanka* USA

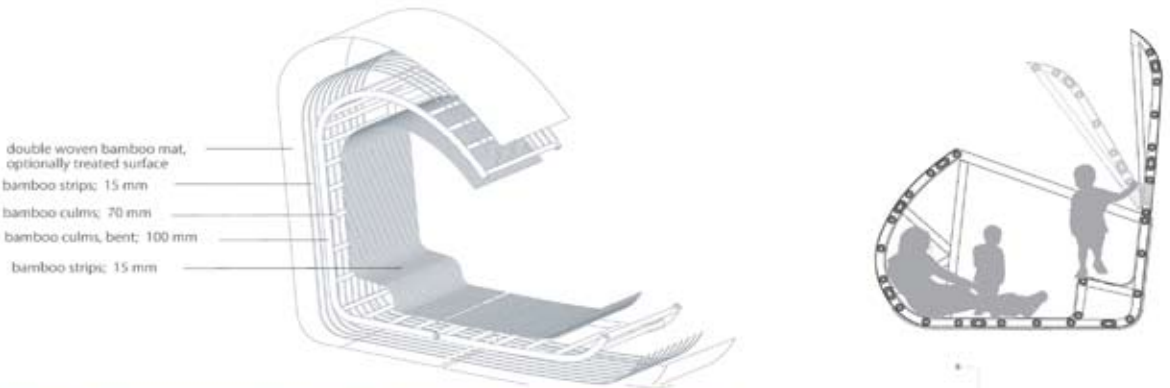
This small house, which serves as a caretaker's home on a larger property at Cabo Matapalo, Costa Rica, is a hybrid form, both physically and functionally. The base of the house is constructed in the local vernacular as a concrete and stucco form that encloses parking and kitchen functions. This solid form grounds the building and functions as a fully enclosed and protected zone that isolates and protects the occupants of the upper living and sleeping quarters from the nearby rainforest floor. The second floor living area is less enclosed by a soaring structure of bamboo construction that springs from the ground level and mimics the canopy of the nearby rainforest, with its sweeping form filtering and protecting the interior spaces from the sun and elements.

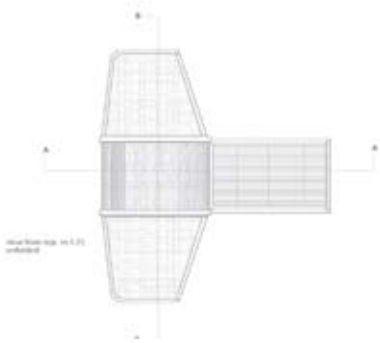
The light weight bamboo building canopy, made of 3" diameter bambusa stenostachya structural members, expresses the flexibility of the space below and allows the form to have various degrees of openness. Local woods supplement the use of bamboo too in the upper level enclosure. This structure blends high-tech and low-tech components with the structural bamboo being held together by stainless steel pivoting anchors. The enclosure of the upper level includes operable louvered awnings that allow for great variability in the degree of openness. The occupant can be either fully protected from or fully availed to the environment by modulating the enclosure as desired.

The structural integrity of the building is derived from its the close association of the functions each building element contains, creating a form that mimics its functions. It is an eminently buildable form that judiciously employs building components, linking aesthetics and building use with renewable resources, fulfilling the client's and architects' desire to create a sustainably built form within the relatively intact and sensitive environment of the rainforest.

SPG Architects — *Caretaker's House for Costa Rica* — USA

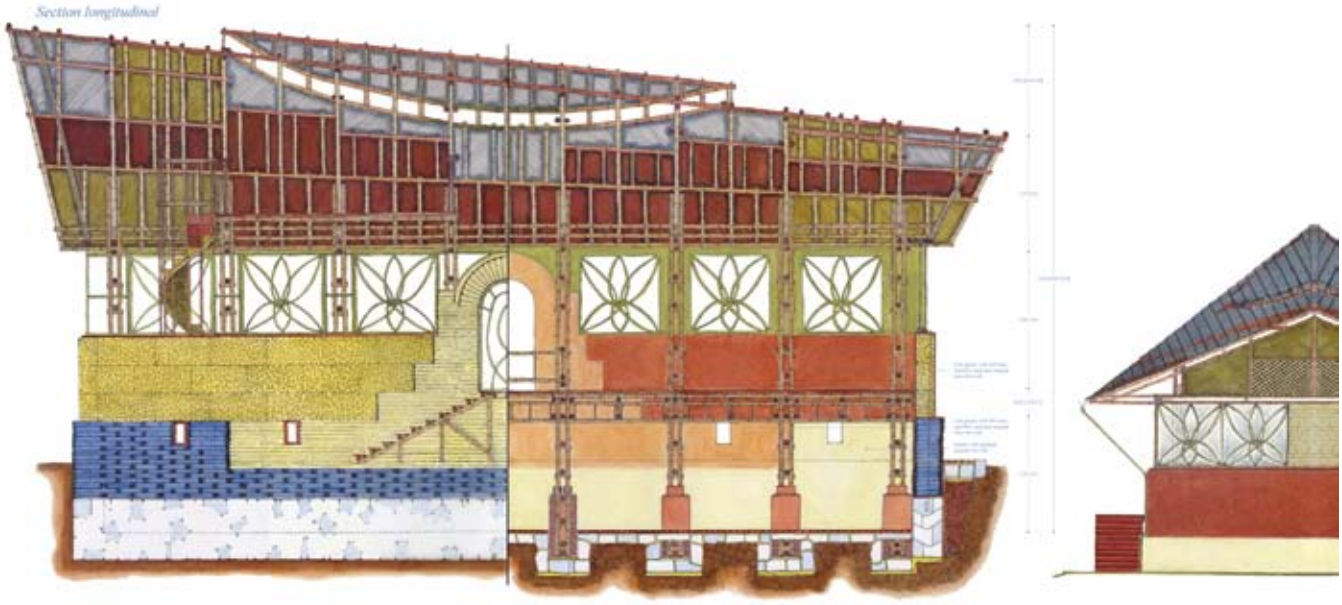






Over 70% of the haitian population depend on the agriculture sector, which consists mainly of small-scale subsistence farming. Subsequently farmers are bringing their harvest in small portions to the local markets where they are directly selling it to customers which is usually done by women. The design addresses the harsh conditions which the women and their children from the countryside are exposed to at their daily work. The structure will serve as protection of sun and rain and might even be used to spend a night instead of sleeping on the sidewalk.

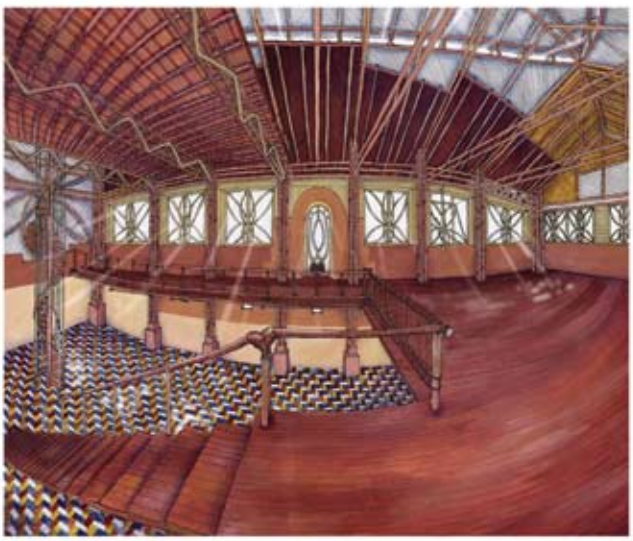
B. Catanzaro (I) & M.R. Putzmann (D) *Huevo Duro for Haiti* Germany

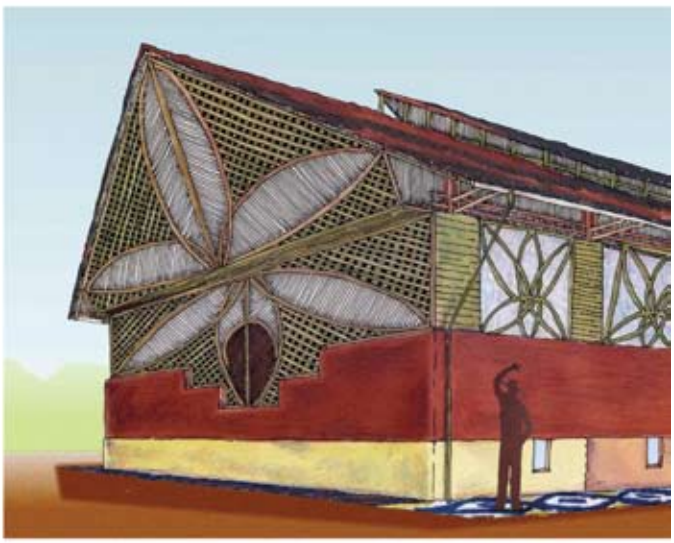


The organism's life.

description and philosophy inspiring the design project.

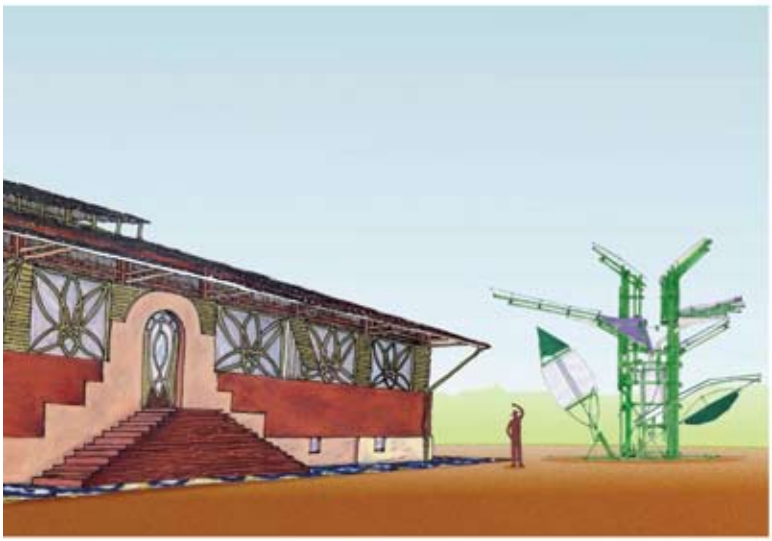
The organism's life is reflected in this project, which is divided into two parts: the first is 100% pure hybrid; its materials are organics and recycling, the finality to mitigate the pollution.
It utilizes wood, straw bale, used tires, earth-bags, stone, gypsum, adobe and cob, establishing a comfortable space. Also, building with bamboo has a strong structure. In addition, the project's materials don't include concrete, aluminum, copper, steel and Plastics. The laboratory is proof of integrity with different constructive techniques, accomplishing neat pale. It's a refuge of biological research.

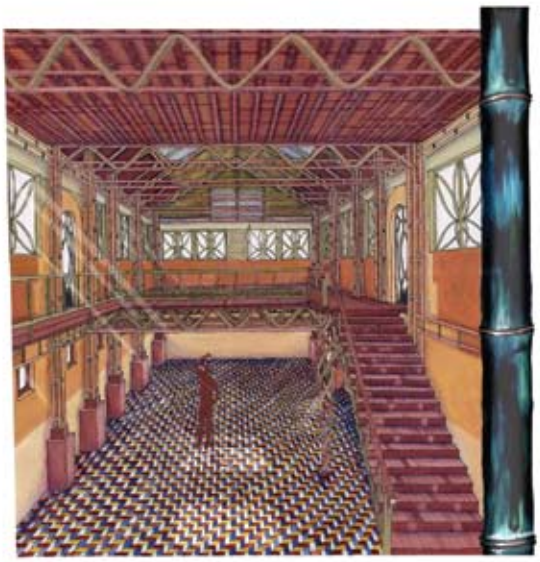




Ruben Ramirez *The Organism's Life* Mexico

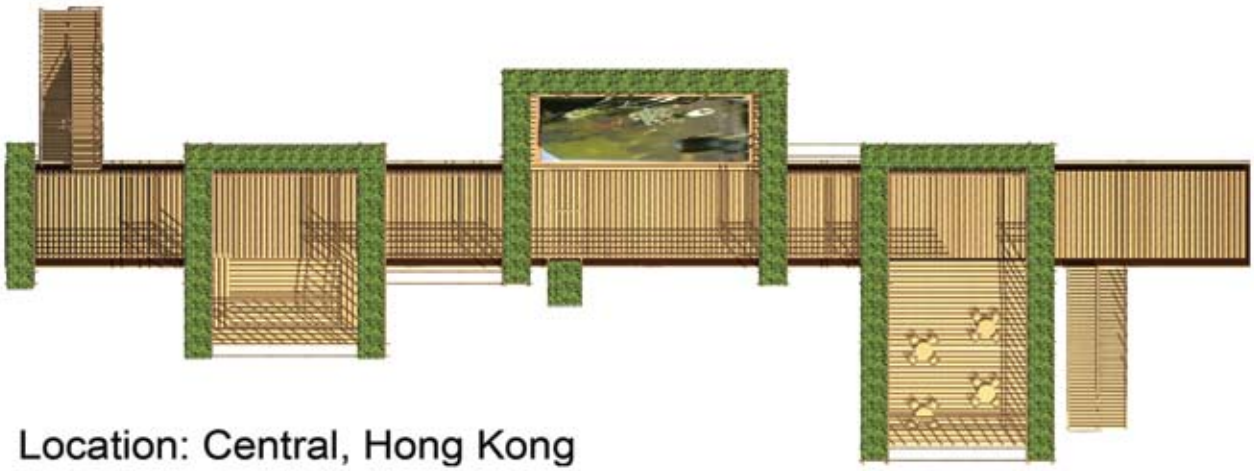
The second part of the project is the *Neomarica Gracilis* plant, treating to build an analogy with *Bambusa Stenostachya*. The function of the plant is to capture the environment's water by its corolla and distribute it to the rhizome's plant. The water can not be rendered to the cane harvest, so this is why the temperature is low.
Without, the solar leaf (cylindrical-Parabola) reflects the shined light to the pipes, which contains hot water increasing the temperature and then distributing it to the rhizome. By convection the water is ready for the harvest, but, how? The eolic leaf makes good use of windy force, and then it moves the contraption by internal breath of xylem, the optimal water rise and strew to the harvest. In this way the whole plant aids its sisters and the organism feeds us. The system is 100% organic like a plant and 100% sustainable.





Ruben Ramirez *The Organism's Life* Mexico

Cozy Breeze



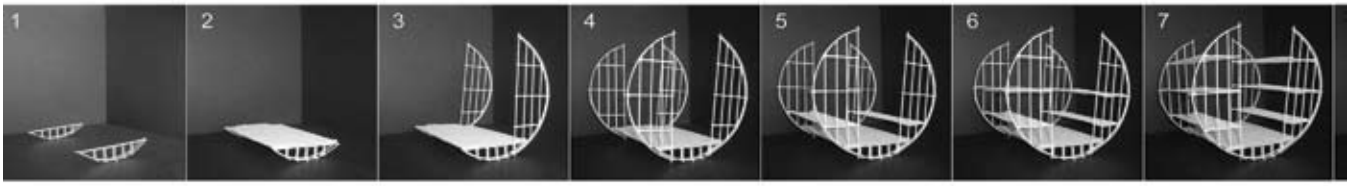
Location: Central, Hong Kong

Purpose: Central is the financial heart of Hong Kong island. The highest rental rate with the highest density in this district. As the expensive rental. A botanic garden is not easy to find. Everyday citizen are living in a glass, concrete and steel desert.

Yip Wai Ngai (Ken) *Cozy Breeze Bridge Corridor* Hong Kong

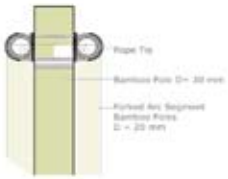
A huge bridge network is use to connect several main financial buildings in Central. Sometime we may ignore the usage on the roof of this bridge. A bamboo corridor is a good way to introduce a green environment to passenger. Bamboo has a long history in Chinese culture. Bamboo have a widen usage in the mainland. On my opinion, the feature of bamboo that I most appreciate is the appearance and natural nature.
In this corridor, the bamboo frame created a pattern in variation. We put many planting in the void of the frame. The natural of bamboo combined with plant create a space with natural element. We can create an oasis in this desert.

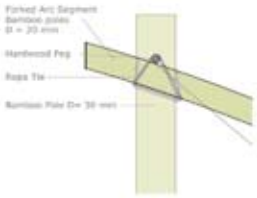
Yip Wai Ngai (Ken) *Cozy Breeze Bridge Corridor* Hong Kong

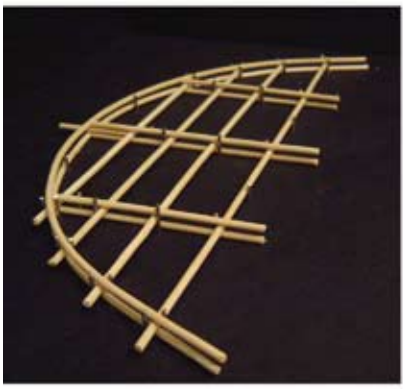


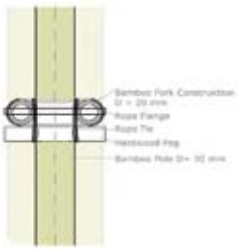
Diogenes -
The Nomadic Emergency Shelter

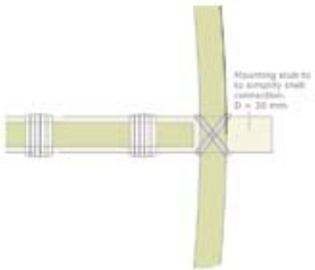
simplifies any emergency shelter needs anywhere...

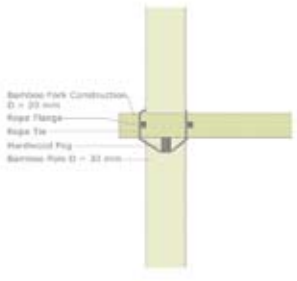


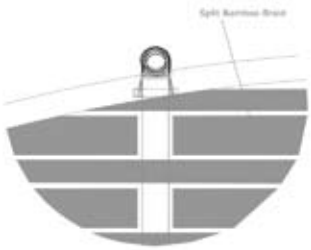




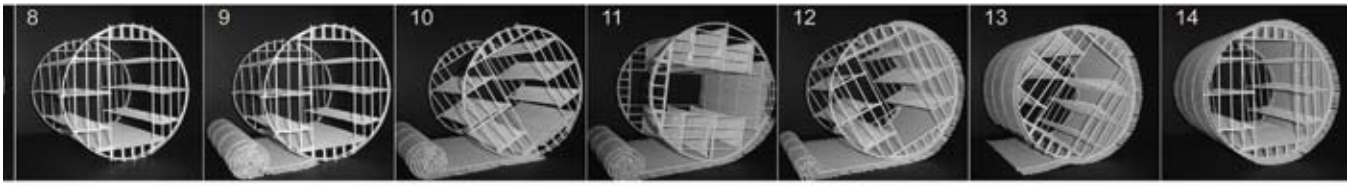


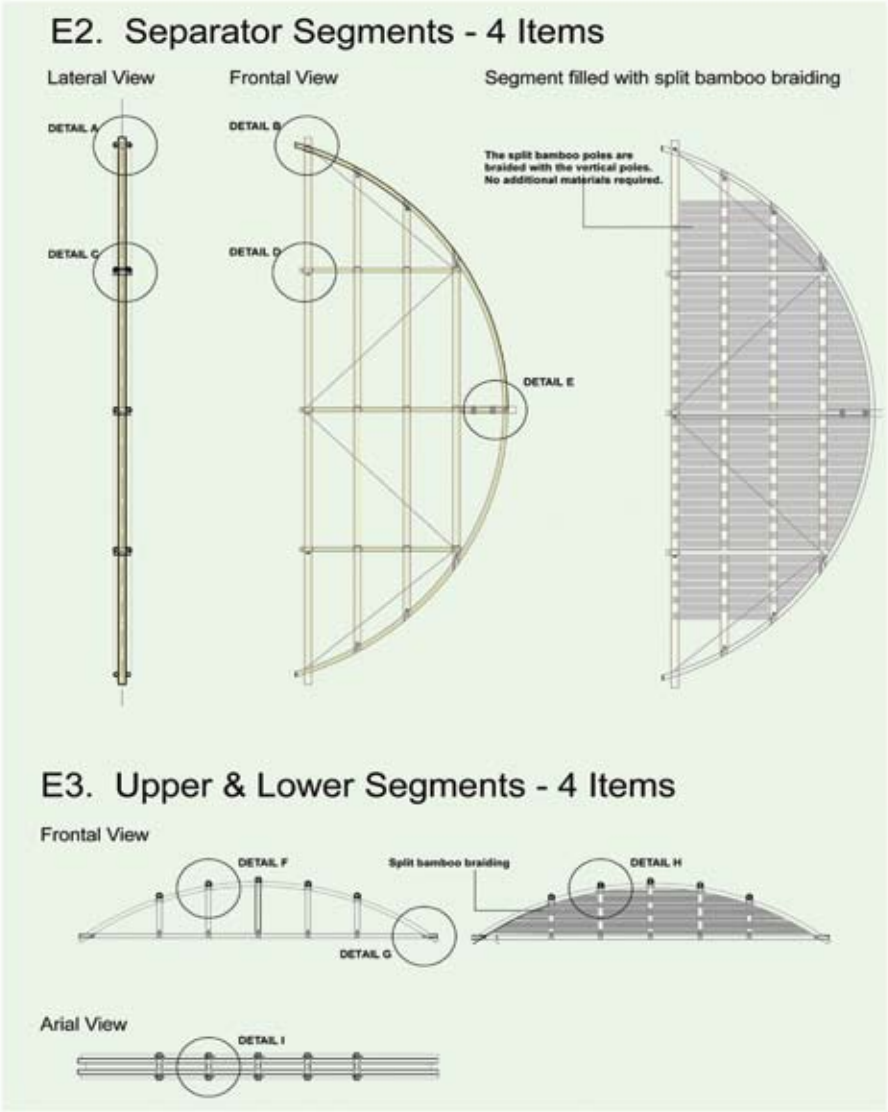




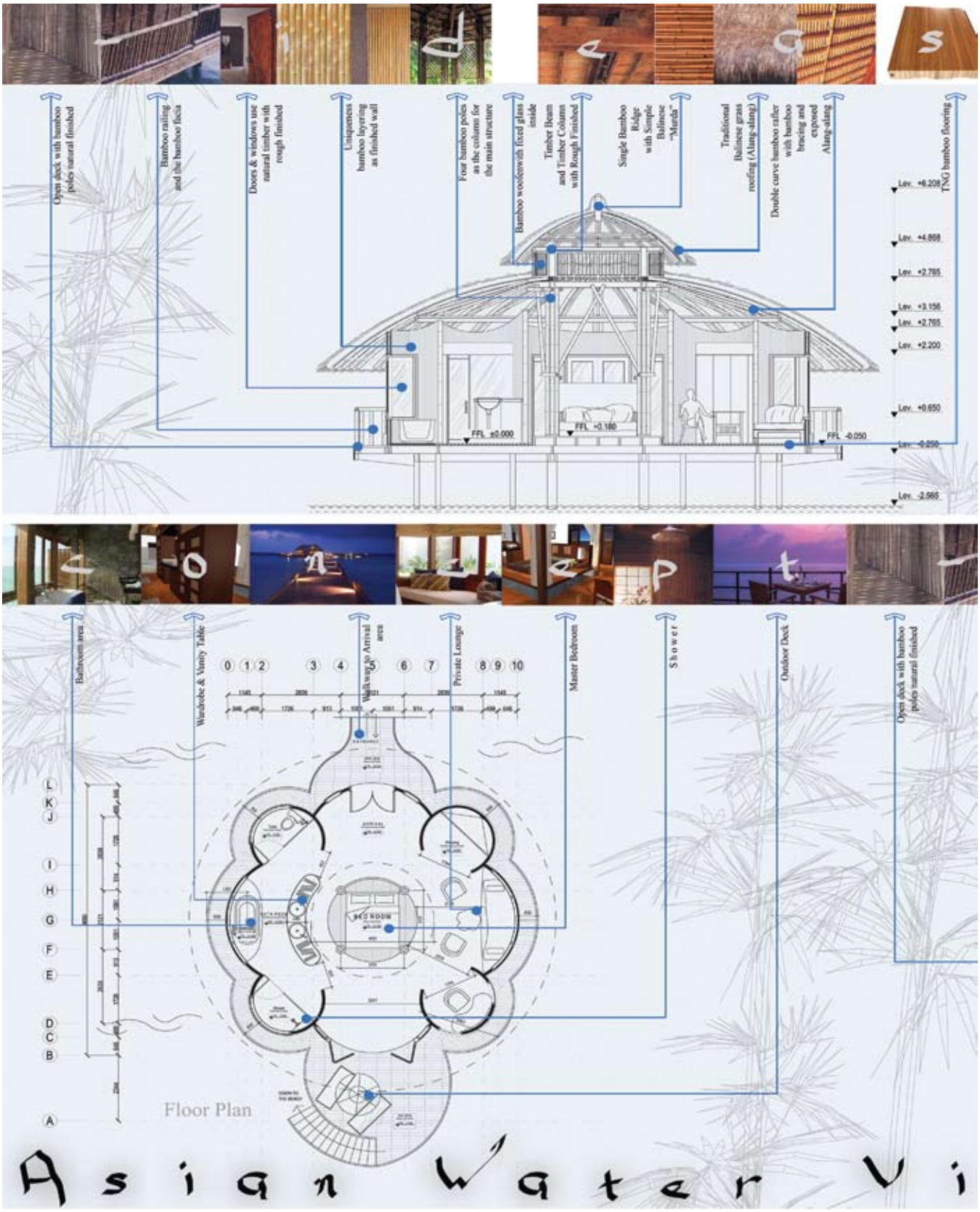


S. Schuler, O. Sarica & A. Wilheim *Diogenes Nomadic Shelter* Germany





S. Schuler, O. Sarica & A. Wilheim *Diogenes Nomadic Shelter* Germany



I. Made Gde Dhamendra *Asian Water Villa for Malaysia* Indonesia

Description

Designed and proposed for Over Water Villa at Mallaca Beach Resort-Malaysia. The Asian Water Villa is loosely resembled of the Asian Cup & Saucer Shell form. Designed with one floating master bed at the center with reflecting water effect from the bottom. Private lounge and bathroom area on the both side. Open deck area with staircase down to the water at the rear side and arrival walkway at the front. The material will be using mostly from bamboo as a main structure and finishes, except the concrete pier, timber sub-structure and traditional Balinese grass roofing cover. This organic villa will be designed and dedicated for honeymooners with unlimited ocean view as the prime privacy.

I. Made Gde Dhamendra *Asian Water Villa for Malaysia* Indonesia

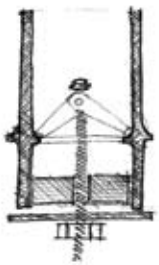
Cheung Kwok Ching *Cliff Hangar for Sichuan China* Hong Kong

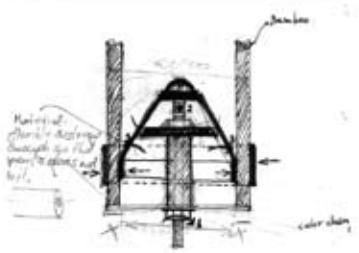
Retractable Roof

Application of the Braced - Ring Connection in a retractable roof. Here the connection is only applied to the static joints and not to the joints at the lower corners of the structure where the connections are in motion.

Roof Truss in Place D'Armes

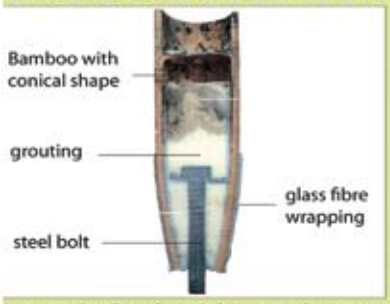
Application of the Braced - Ring Connection in a roof structure. Located in the district of Old Montreal, this site offers the possibility of connecting the Place D'Armes Metro Station to the underground part that leads to the other side of the highway. Due to harsh winter climate, a roof structure would be quite suitable for the site.



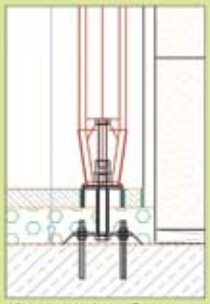


Wehran Gharaati & Andi Stvuga *Connections Roof for Montreal* Canada

INNOVATION



Innovative Bamboo joining technique

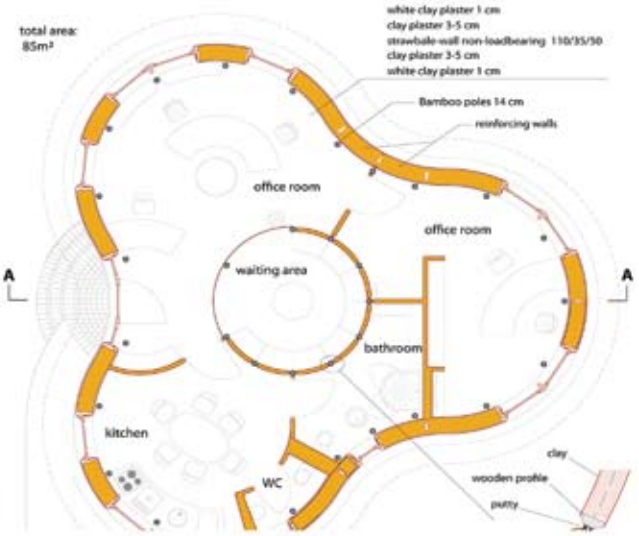


Connection floor

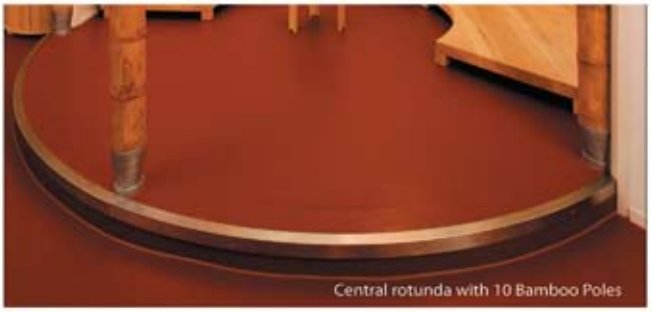
Bamboo Pole top

Bamboo in Adobe wall

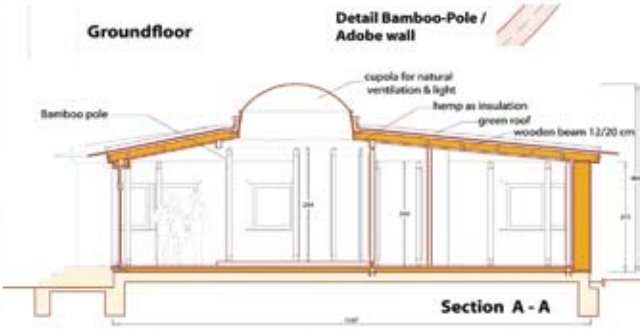
33 Bamboo Poles a



Susanne Korner & Tilman Schaeberle *Bamboo Strawbale House* Germany



Central rotunda with 10 Bamboo Poles



Low primary energy input

Straw-bale wall provides high insulation

First layer of clay on strawbale wall

Final layer of white

Susanne Korner & Tilman Schaeberle *Bamboo Strawbale House* Germany


bearing structure


Roof structure


Reinforcement in strawbale wall


All Bamboo poles are visible

Description

The building is located in the city center of Darmstadt in Germany.
It is the first permanent building in Germany where structural Bamboo poles are used.
Our intention was to create a high-quality ecological house with innovative building techniques and materials.
Due to the strict german building regulations we decided to apply a simple construction and make use of a Bamboo joining technique which has undergone extensive research.

33 Bamboo poles „Guadua angustifolia" carry the roof and characterize each room with their unique beauty.

Natural materials are used in order to provide a healthy space and promote ecological building techniques. Curved strawbale-walls plastered with clay provide a very good insulation and consume little energy for production. The green-roof produces extra oxygen in the city.

The overall design is inspired by organic forms and shapes in nature.

The building was finished in 2006 and is used as an office.
Groundfloor area covers 85 m².

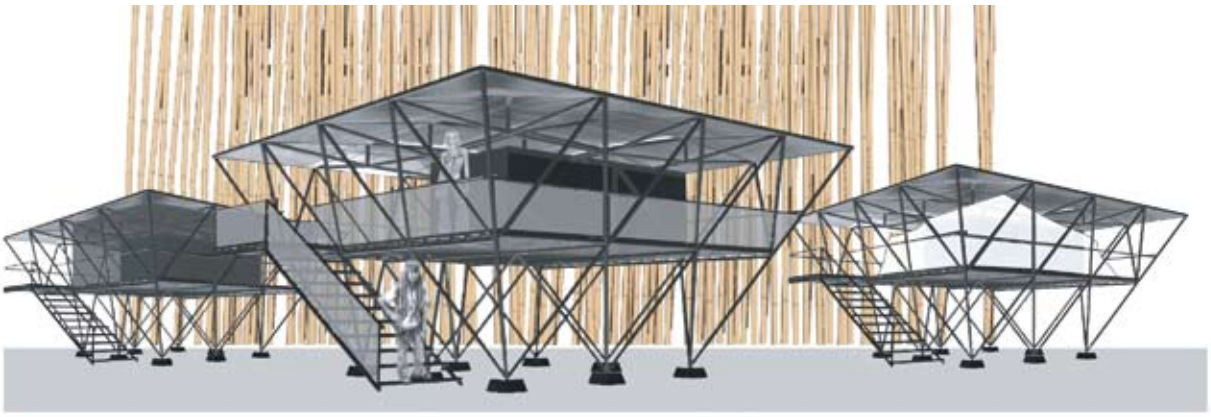

Bathroom

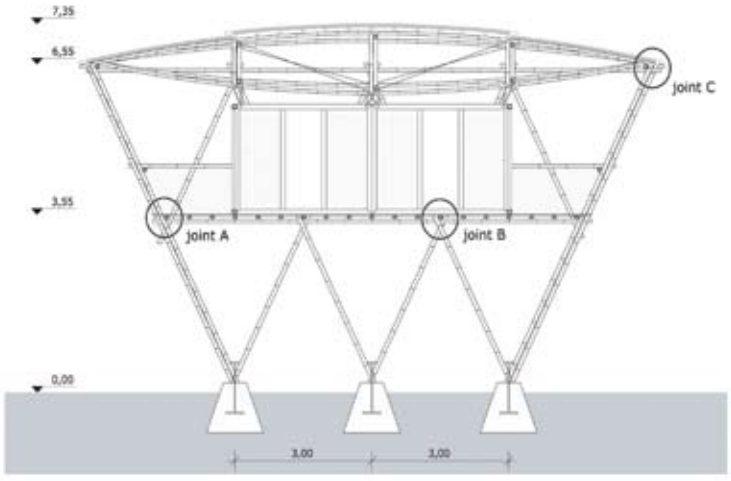
Adobe bricks are used for the interior walls

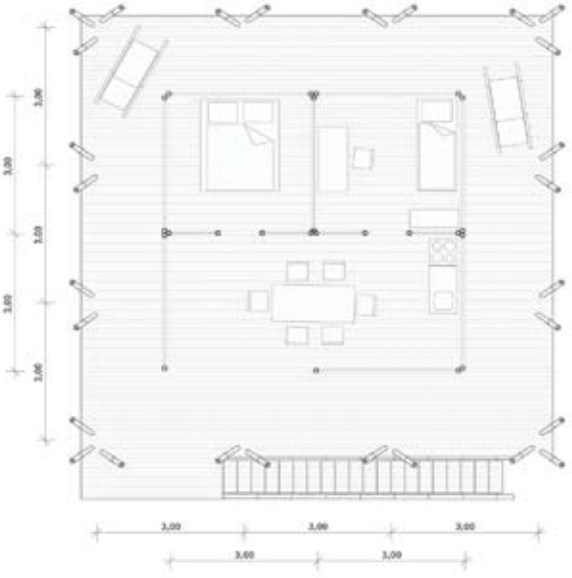
First layer of clay applied on reed mat

The green roof with cupola for ventilation

Susanne Korner & Tilman Schaeberle *Bamboo Strawbale House* Germany





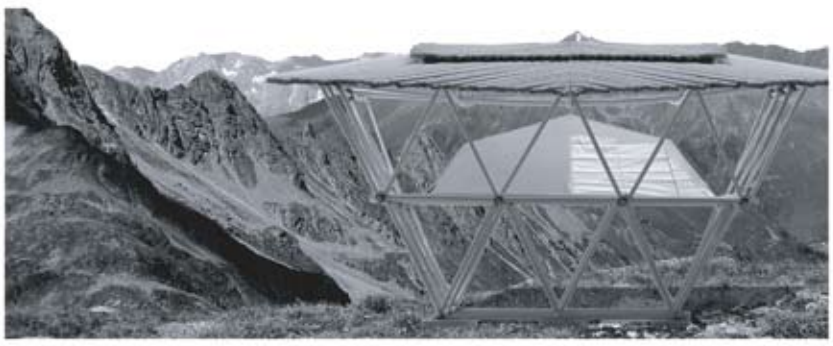



joint A

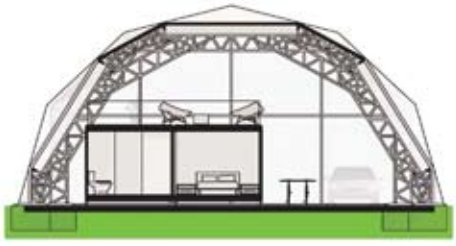

joint B

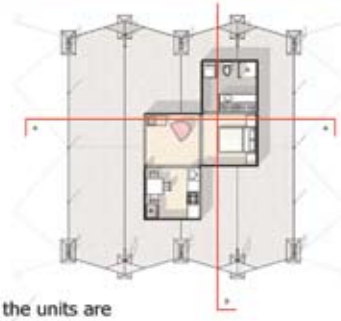

joint C

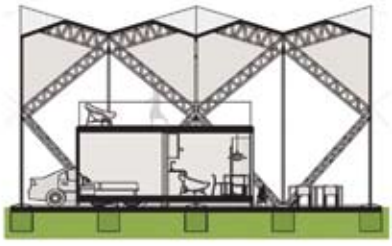

joint C



C. Lensing, J. Hildebrandt & A.Burdzenidze *Urban Nature* Germany







Throughout a lifetime the needs of people is changing continuously. Starting out as single, and then becoming a couple, having kids... Through these phases the need for space keeps increasing, but later when the kids move out the need for space changes or decreases. Modern buildings should easily be able to meet these changes or even be reconfigured into completely different purposes.

This is exactly what SuperFlex System is! It's not only a system for living, but can also serve as pavilion, for sports, flee markets, barn for the farmer, shop for the mechanic, you name it! Or it could serve as a commune for several friends or just one person. It comes in different sizes, just buy more roof components and living units according to your needs and economical performance, or sell those you don't need any more. This secures that the material and energy that has been put into the building is used most efficient, and make less impact on the environment.

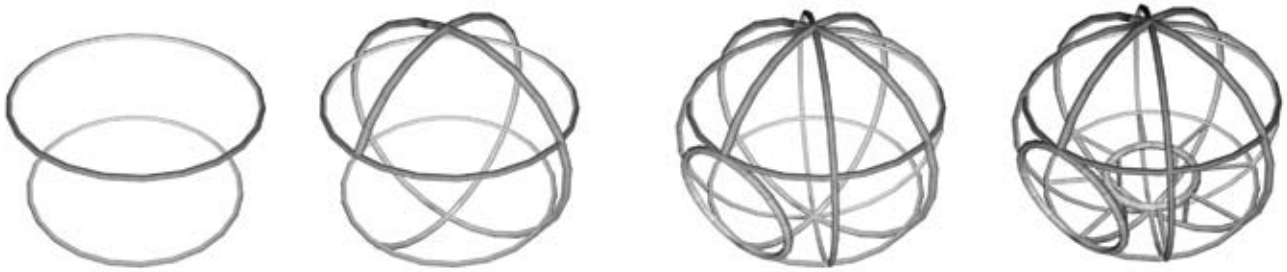
Architecturally the project is divided into three zones. The indoor, inside the living units, quite traditional, except that the units are mobile, can be pushed around, and combined in different ways. The semi outdoor covered space between and on top of the living units, and the outdoor space. The most interesting about the SuperFlex System is the Semi outdoor space. This is the place for much different kind of activities; only the imagination sets the limit. Just move the living units to one corner or outside if you want to have a big party, or play indoor basketball with your friends.

SuperFlex System consists of few and simple components with multiple solutions. The result is advantages for both manufacture and client. The manufacture gets a efficient cheap industrial mass production, and the client gets the opportunity to custom design their own home for the locale climate, building site and individual wishes, within the limits of the system, always resulting in high quality, and less errors, meaning less costs.

Soren Korsgaard

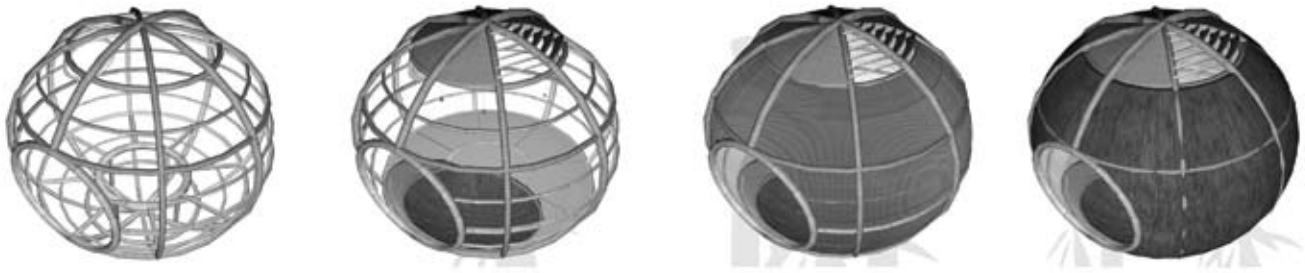
Super Flex House

Denmark



Coconut's concept aims to combine design and structure in a perfect balance. In order to achieve this result, coco features an innovative method of construction which employs only bamboo curved poles. The greater poles are curved while they are still growing, while the thinner ones are bended relaying only on the natural flexible power of bamboo. Like a basket, in coco every element plays a key role making harder the whole structure at every

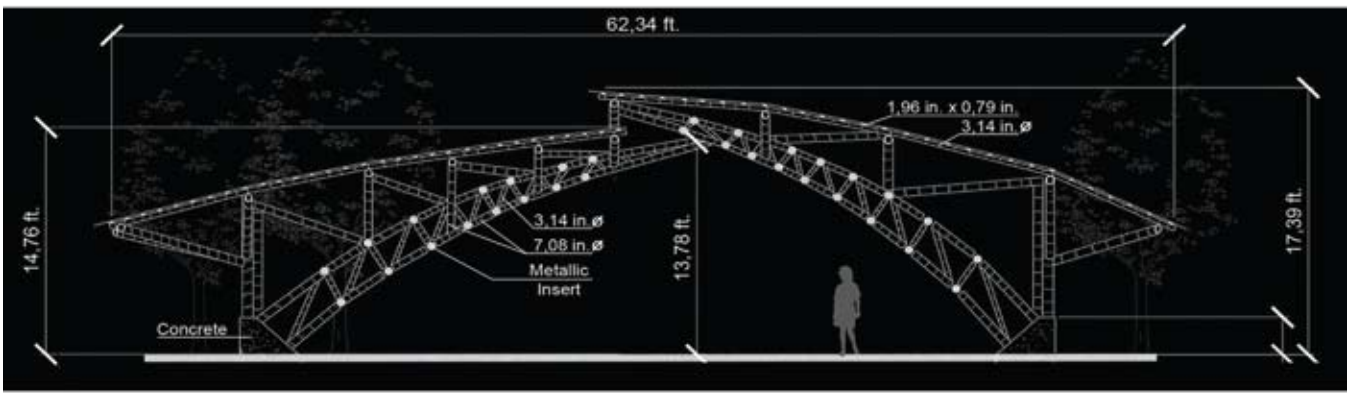
A. Grassi, M. Annoni & R. Zilli *Coconut Resort Houses* Italy



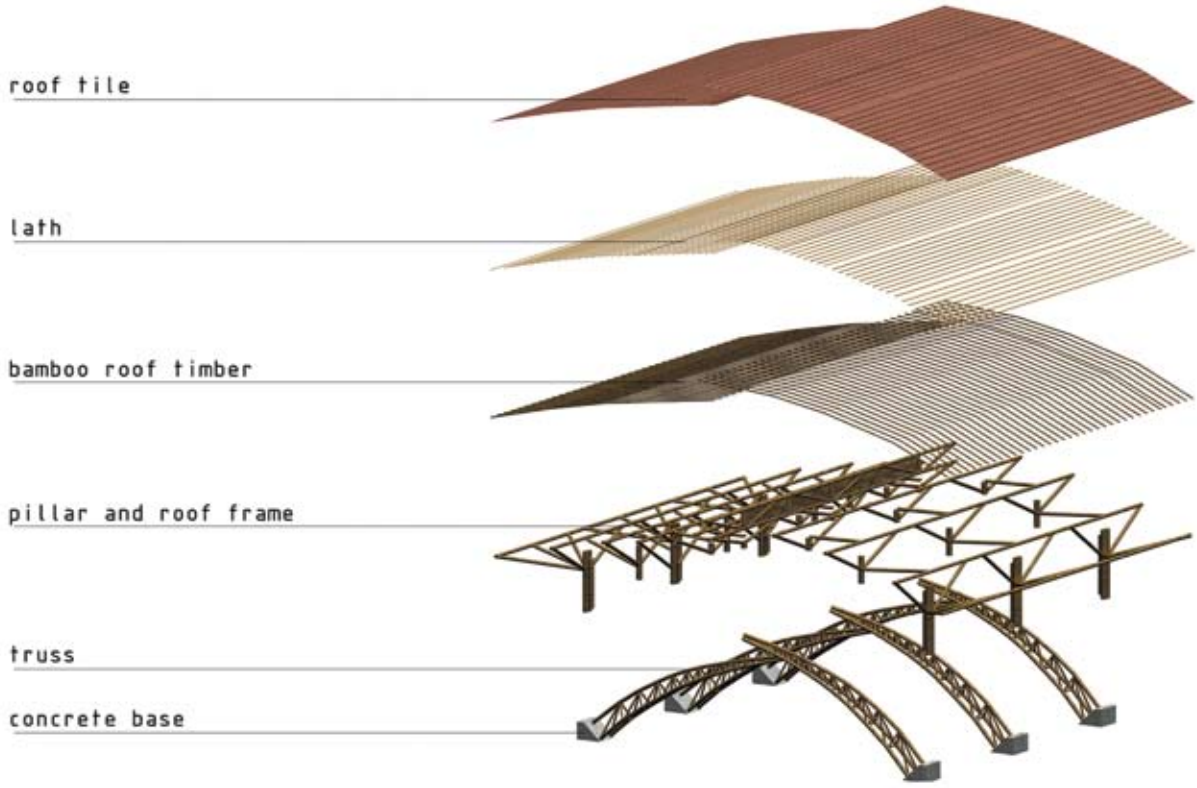
sequential step of the process. The spherical form thus obtained provides at the same time a stable structural integrity as well as an aesthetical inward design.
The internal ambient is completed by a circular tatami with a central storage box and a window-door system, all of which are perfectly integrated with the main structure. All these features, together with its easy transportability, make coco an ideal structure suited for park, garden and resort settings.

A. Grassi, M. Annoni & R. Zilli *Coconut Resort Houses* Italy

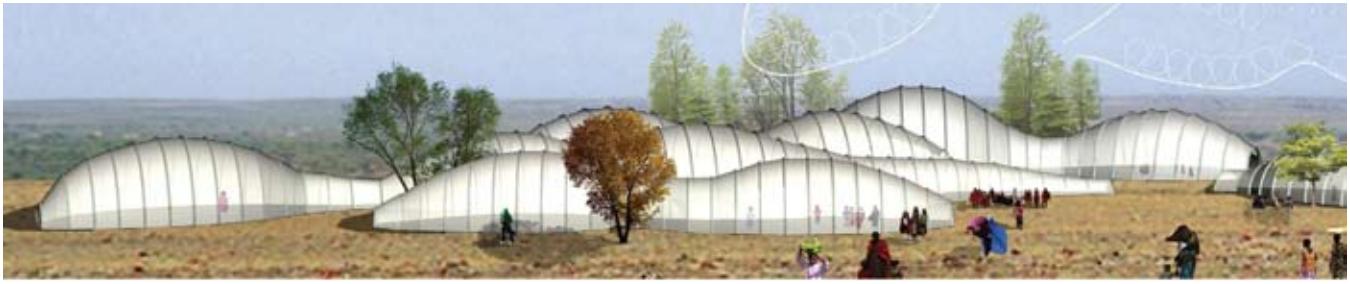
Inspired by the Bamboo structural constitution and flexibility, the design makes an allusion to two clumps touching their top parts.
Been a flexible design it can be built in many different environments and situations as a permanent or temporary structure.
All structural Bamboos can be used, that means, some of the Guaduas family, Dendrocalamus family and Phyllostachys family, preferred the first two species for those structural properties.
A well being environment, with organic concepts as a comfortable shelter in a Park or Garden.

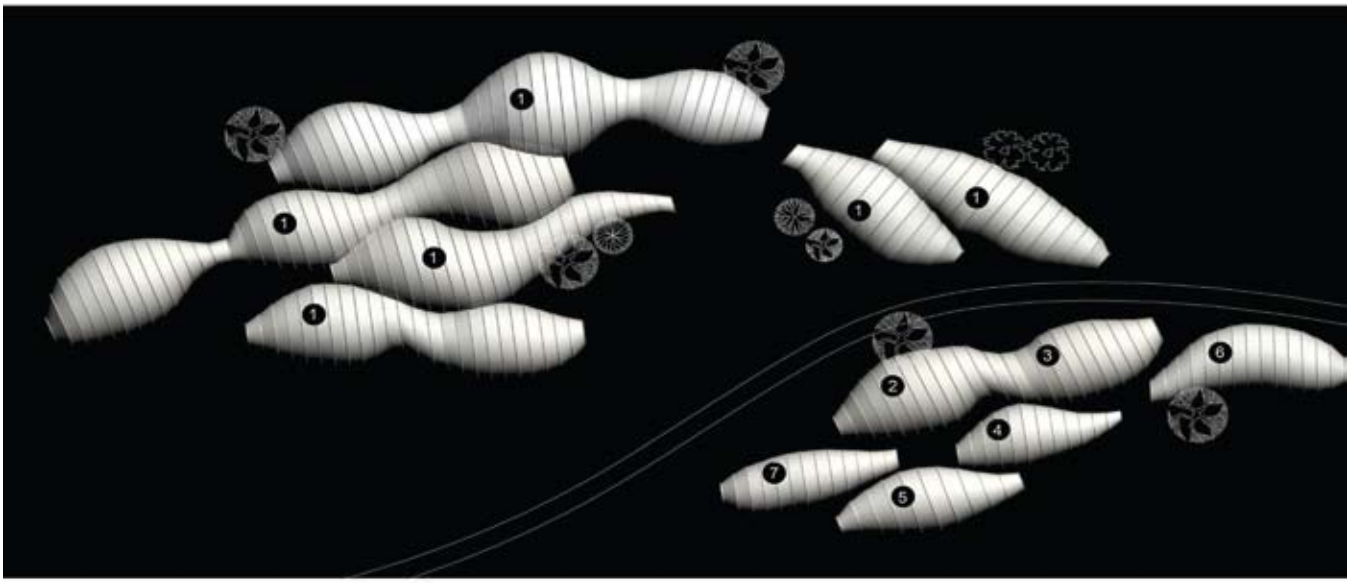


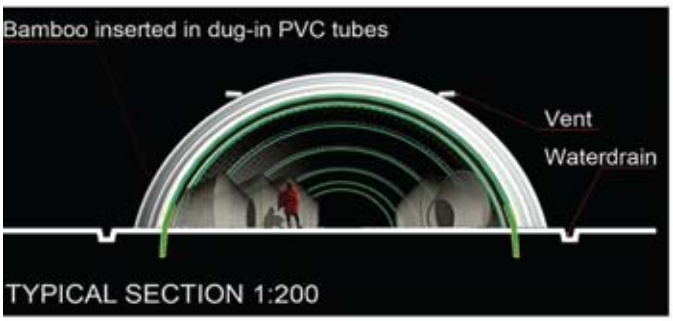
Rafael Penteado Paolini *Flexible Design* Brazil



Rafael Penteado Paolini *Flexible Design* Brazil





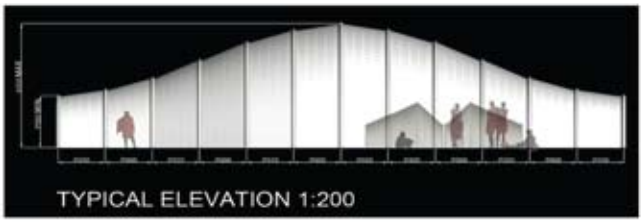


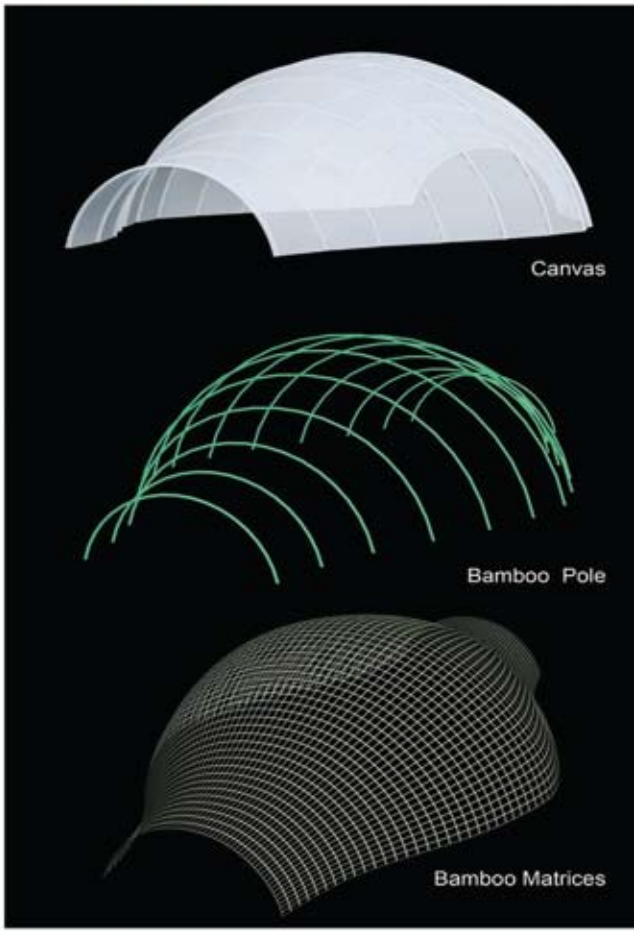
Chen An Fei *Sprouting Emergency Settlement* China

INTRODUCTION

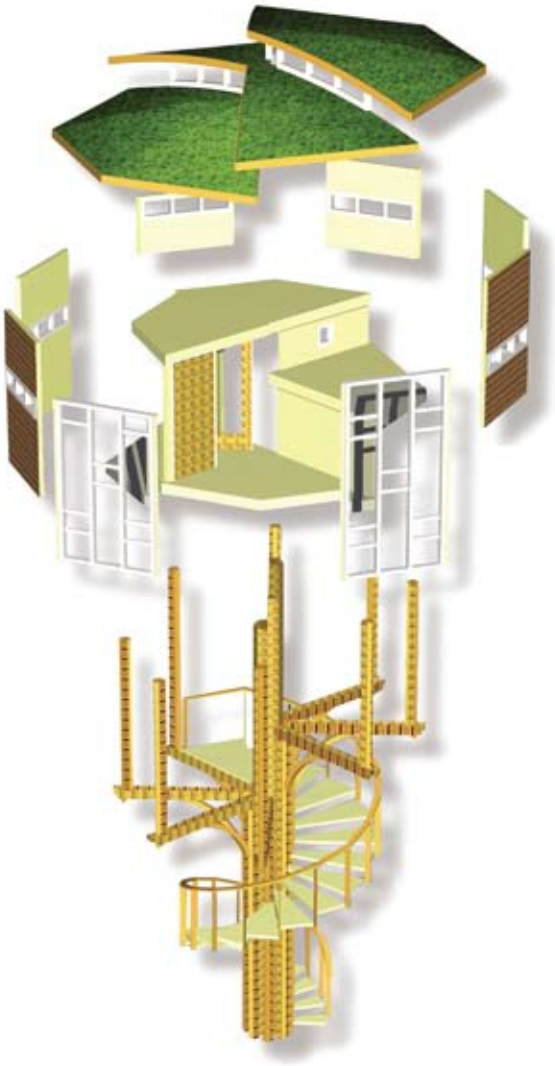
Humans' survival is always threatened by various kinds of disasters. Although international aids and rescues have never stopped, there are still more than 22 million refugees leaving their country all over the world because of war, famine and natural disasters, according to the statistics from UNHCR. It' s true that the casualties caused by delayed rescue are actually more than those caused by the disaster itself. Thus, emergent rescue should be enforced and the rescuers are supposed to make full use of time. Moreover, what is urgent to the refugees is not just a camp that may provide shelter but a place in which they are able to restore their pattern of production and life.

The design focuses on the background of post-disaster rescue, and by making use of bamboo, the designer hopes to sprout an emergency settlement, rather than just a shelter, in a short time for the refugees. The settlement' s function is to provide them with a home to live, a hospital to receive medical treatment, a school to be educated, a cemetery to mourn for their relatives, and a workshop to restore production, all of which will rebuild their confidence to survive and restore their power to stand up quickly.





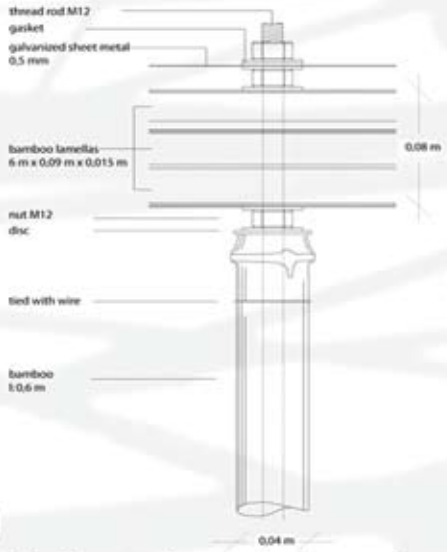
Chen An Fei *Sprouting Emergency Settlement* China



Attic_3 is a multifunctional bio-ecological living/housing/work unit. Its structure is adjustable to its environment and the user's requirements. The structure is applicable in rural, as well as in urban environments.
The core of the building is a tree or a lamppost, surrounded by a stable structure of bamboo pillars on which eight floor boards are attached that can differ in height. Using these parts, rooms of various sizes and levels can be created. The stairs that lead to the residence section are created like a spiral around the pillars. This spiral trend is continued in the rest of the building.
Its structure can be open or closed; this all depends on the unit's function. A fully closed structure with walls and glass partitions, completely closed off to the public, is suitable for an urban environment. A complete open structure is more suitable in rural environments, such as using it as a public room.
The biological and ecological aspects are important in the construction. Apart from bamboo, additional natural building materials are used in the design. There will be a natural regulation of humidity and filtering, as well as neutralisation of injurious chemicals. The roof will be constructed out of vegetation to create a water system for toilet and inner planting.

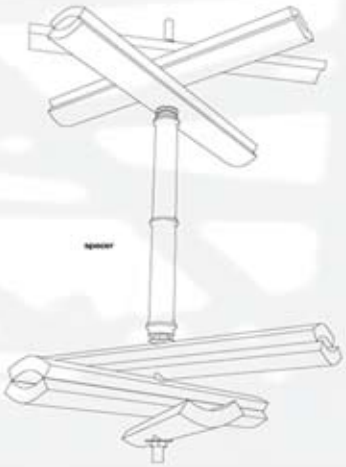
Lidewij Spitsauis & Edward Erasmus *Attic-3 Treehouse* Netherlands

Gerard Minakawa *Starry Bamboo Mandala at Burning Man* USA



BAMBOO

Bamboo was tested via 1:1 experiments in micro and macro scale; during the whole building process alternatives were tested to reach the wanted quality by exploiting the full potential of the material. The use of split Bamboo enabled us to create a free form surface structure, making full use of the materials ability to carry high tensile strength. "low tech" techniques helped to develop a feeling for the skills and limits of the material.



SPACER

T(h)echo en Mexico is an architectural symbol for a permaculture institution in Oaxaca in southern Mexico. A team of students was asked to design and realize a "Community-center" that transports the concept of a sustainable society. Bamboo as fast regenerating material with its structural qualities was chosen to express this philosophy. Situated on a hill with a fascinating view the roof embeds itself in the landscape and visualizes the agricultural interventions around the building. Collecting and distributing the rainwater are the main issues in regenerating this plot of land.
Underneath the shady structure Workshops, Presentations, and Fiestas can take place to provide the potential of communication between different cultures with shared interests.
In the first step the project was developed in Vienna, Austria 2003 and Finally realized in Mexico with strong contextual influence in terms of Techniques and materials. The building was finished in May 2004.
A Cooperation of the University of applied Arts Vienna, Studio Prix and the Instituto Tonantzin Tlalli made this project possible.

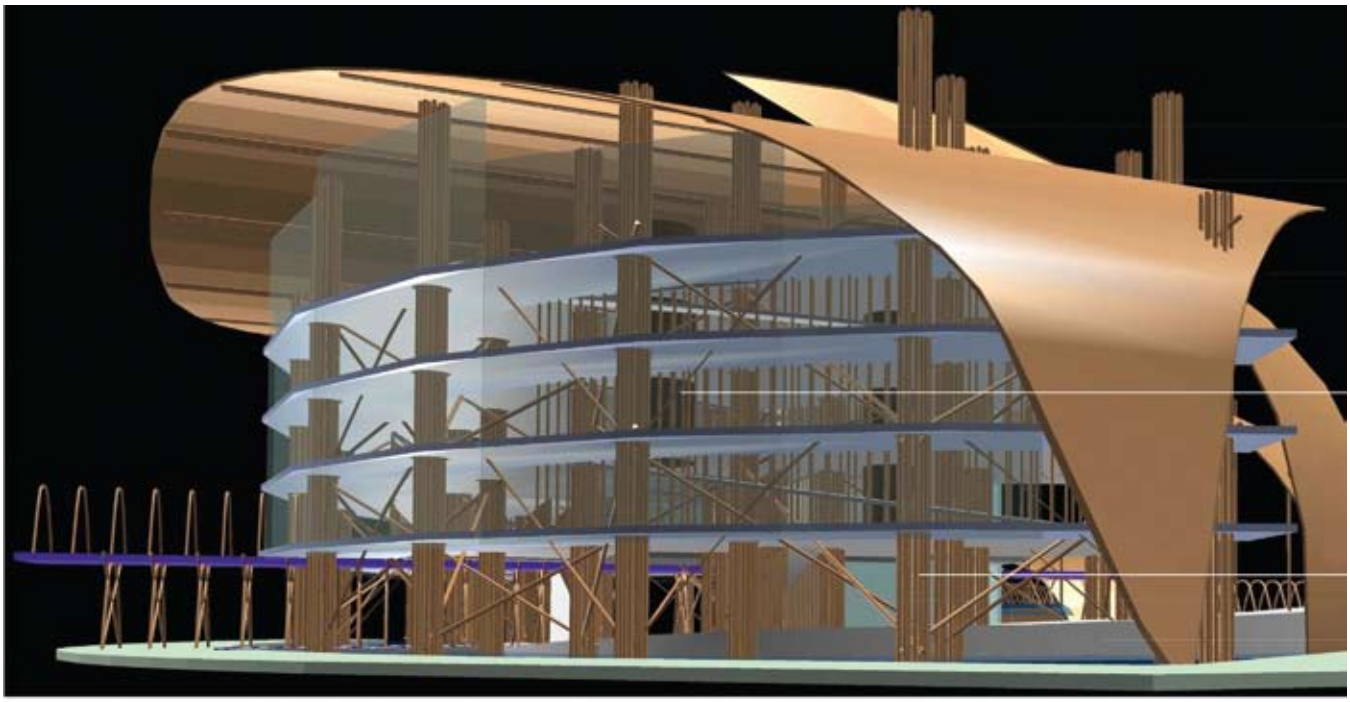
Jean Bolivar *Community Centre in Oaxaca* Austria / Mexico

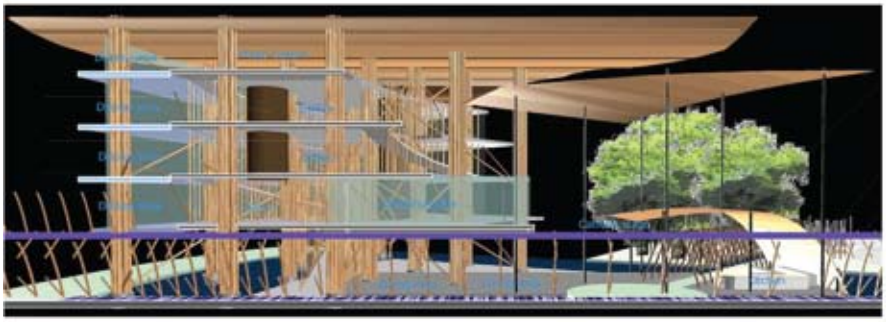
03.2004 bracing...

01.2004 lifting...

To emphasize the explicatory character of the object towards its context, the landscape flows inside the building. A Symbol was created for a community, it defines itself through shared interests, providing space for workshops and fiestas in a flexible floor plan - un salon de baile.

Jean Bolivar *Community Centre in Oaxaca* Austria / Mexico





The site that i selected is located in the town area of Kuala Lumpur, Malaysia. The area (Jalan Bukit Bintang) is well know as one of the tourist spot and its only one block away from the time square and monorail station. Which is easy to reach the site by public. One of the character of the site is the tourist facilities such as bar, backpack hotel, and others that renovated from the old chinese shop houses.

IDEA

The idea of this project is to provide a place for K.L Fashion Show and for local designer to sell and exhibit their products. In terms of that i could promote the usage of bamboo in building design and bring back the nature into the urban context to create an attraction in the complexity of urban life.

Chan Chee Hau *Bamboo Fashion House* Malaysia

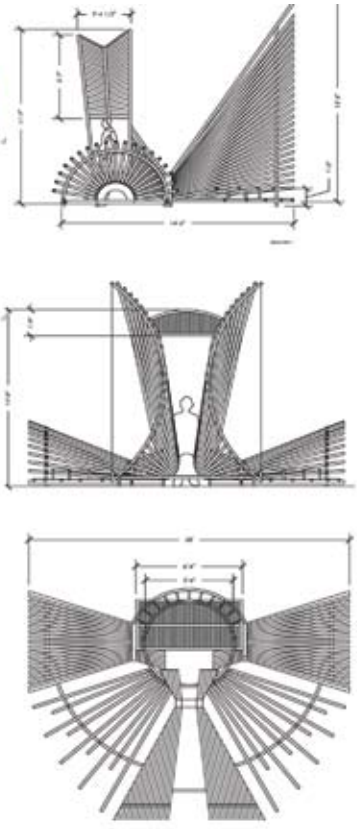
MAS - Caribbean Performance Art

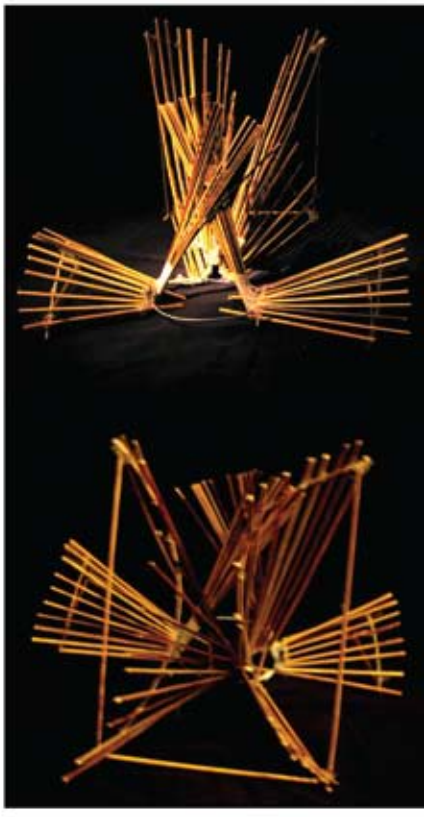
Material: Structural Bamboo

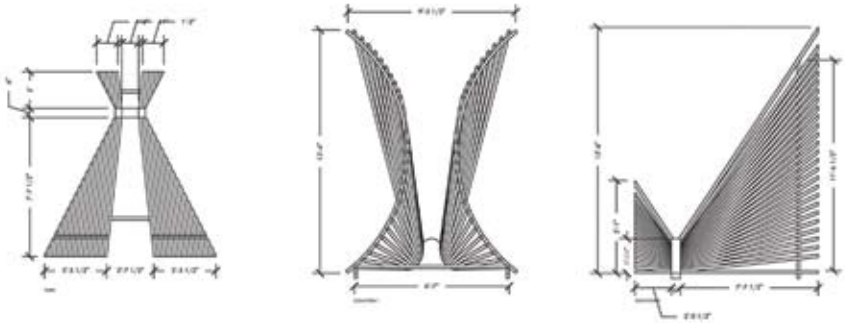
Mas is the abbreviated term for 'Masquerade' used in Caribbean society; specifically and originating in Trinidad & Tobago. The artistic installation I have designed is based on this cultural tradition of building large elaborate costumes that are meant to evoke different feelings depending on their themes. The most well known Mas-man is Peter Minshall who has designed for the opening of the Olympics. The grass-roots essence of carnival is full of drama, dance, music, color and form. The theme of my design is based on using bare structural bamboo (2"& 3" diameter) to make a large piece that a person would be able to stand inside of and move across a stage with.

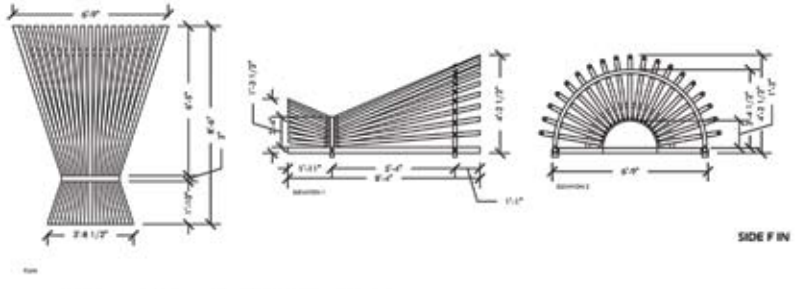
The structure utilizes the great tensile strength of bamboo so that as it moves it would sway and bounce with the movement of the person within it. It is composed of several large fins that connect to a circular steel support around the person. The fins are placed on wheels and would have spring in certain joints to allow movement of certain members.

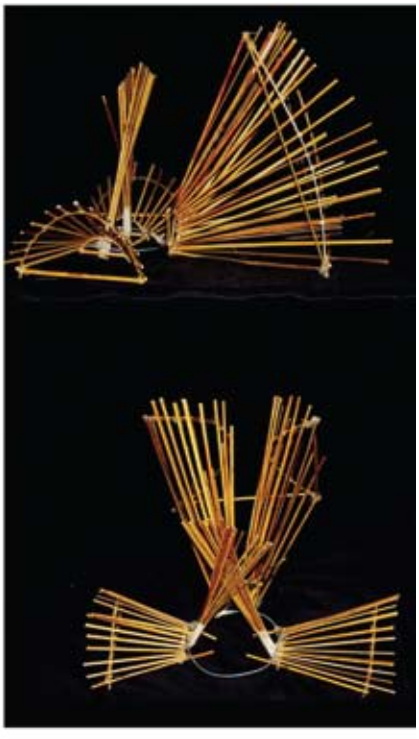
This design uses bamboo for its unique aesthetic and structural value. No adornments of fabric or sequins are added to the structure as it speaks for itself and evokes a sense of awe and elegance. It seems to be more of a natural phenomenon than a human construction as it uses those strengths of the material that have made it as important as it is today. Bamboo is a local material to Trinidad that is used in particular ceremonies and rituals already in Trinidad so its usage in a Mas costume speaks of an indigenous cultural expression made from this noble grass. It is unadorned for this reason, so that it expresses a cultural form that is truly akin to the festival











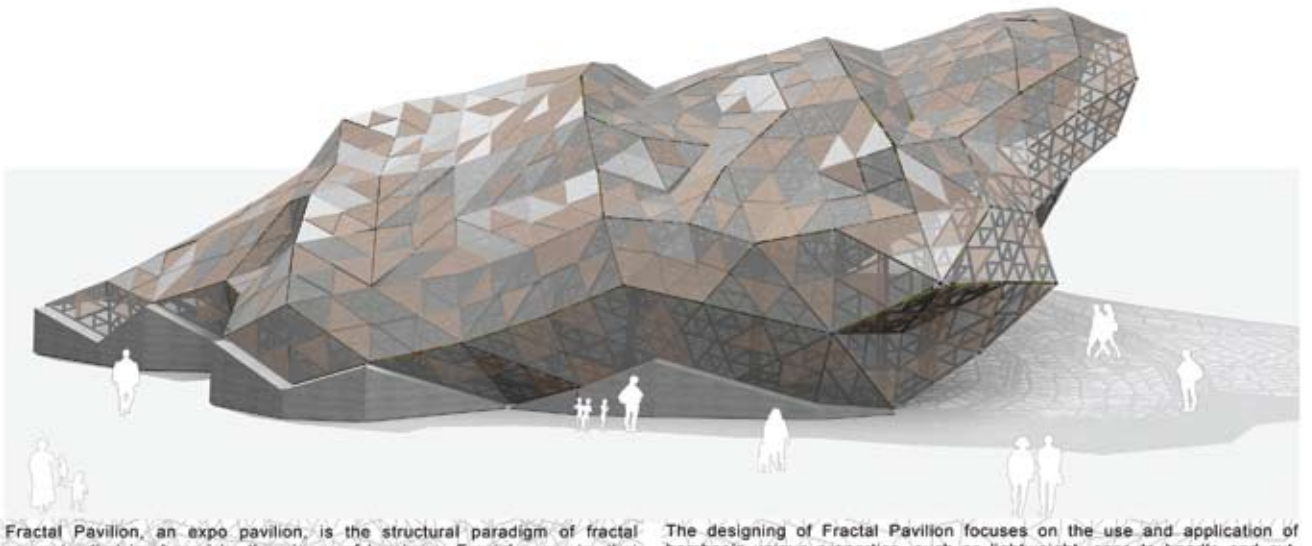
These fins are constructed with structural bamboo pieces of 2 and 3" diameter. The pieces are connected to main members at steel joints or with steel bolts. The entire structure is on wheels.

The model is made from cocyea sticks, which are the centre trips of coconut leaves.

Lisa Rajkumar-Maharau *Caribbean Performance Art* Trinidad & Tobago

Fractal Pavilion: Inside

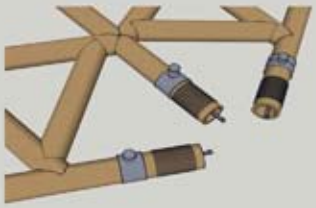
Expo pavilion needs free large space in interior which can only be possible by erecting wide span roof. The inside of Fractal pavilion has been designed by adding some living middle and smalle sizes trees so that visitors can feel more wideness as outside. Filtered sunlight transmitted through different tint glass panels on roof and the bamboo lattice create the fracatl pattern of light and shade on the ground inside.



Fractal Pavilion, an expo pavilion, is the structural paradigm of fractal geometry that is shaped by the pieces of bamboos. Fractal geometry that performs the repetition, recursion and iteration of self-similar components, not only shows the beauty of complexity but also provides the structural stability and technical solidity. Fractal pattern has geometric potency as lattice energy that holds the structure of any object as skelaton, may it be tree or sedimentary rock or nerve network or snail shell, and so on. Besides, fractal geometry has been used in religious buildings, like Hindu temples, churches, etc. as key element that connects the people from the physical world to the spiritual world by manifesting the fractal pattern of cosmos.

The designing of Fractal Pavilion focuses on the use and application of bamboo's unique properties, such as lightweight, ease to handle and cut, tubular shape as excellent self-strengthness, sustainability and eco-friendly, to execute and shaping the structural and aesthetical potency of fractal geometry in architecture. Usually, bamboo is tagged as the rural or vernacular or traditional building material. But it can have a strong appeal in the modern and contemporary architecture. This design proposal of Fractal Pavilion also sheds the light on the outstanding architectonic, structural as well spatial possibilities of bamboos for the challenging arena of contemporary architecture.

Jasef Md Rian *Fractal Pavilion* South Korea

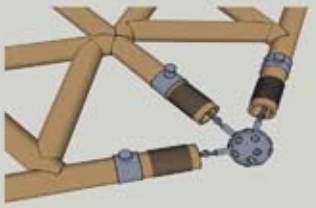


Step 1

Steel and wiring bands at bamboo ends with projected steel key

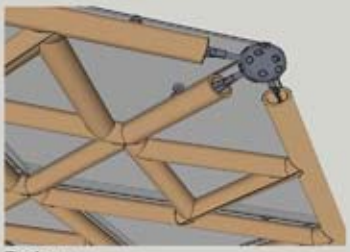
Step 2

Fixing the other key nut with the projected steel keys



Step 3

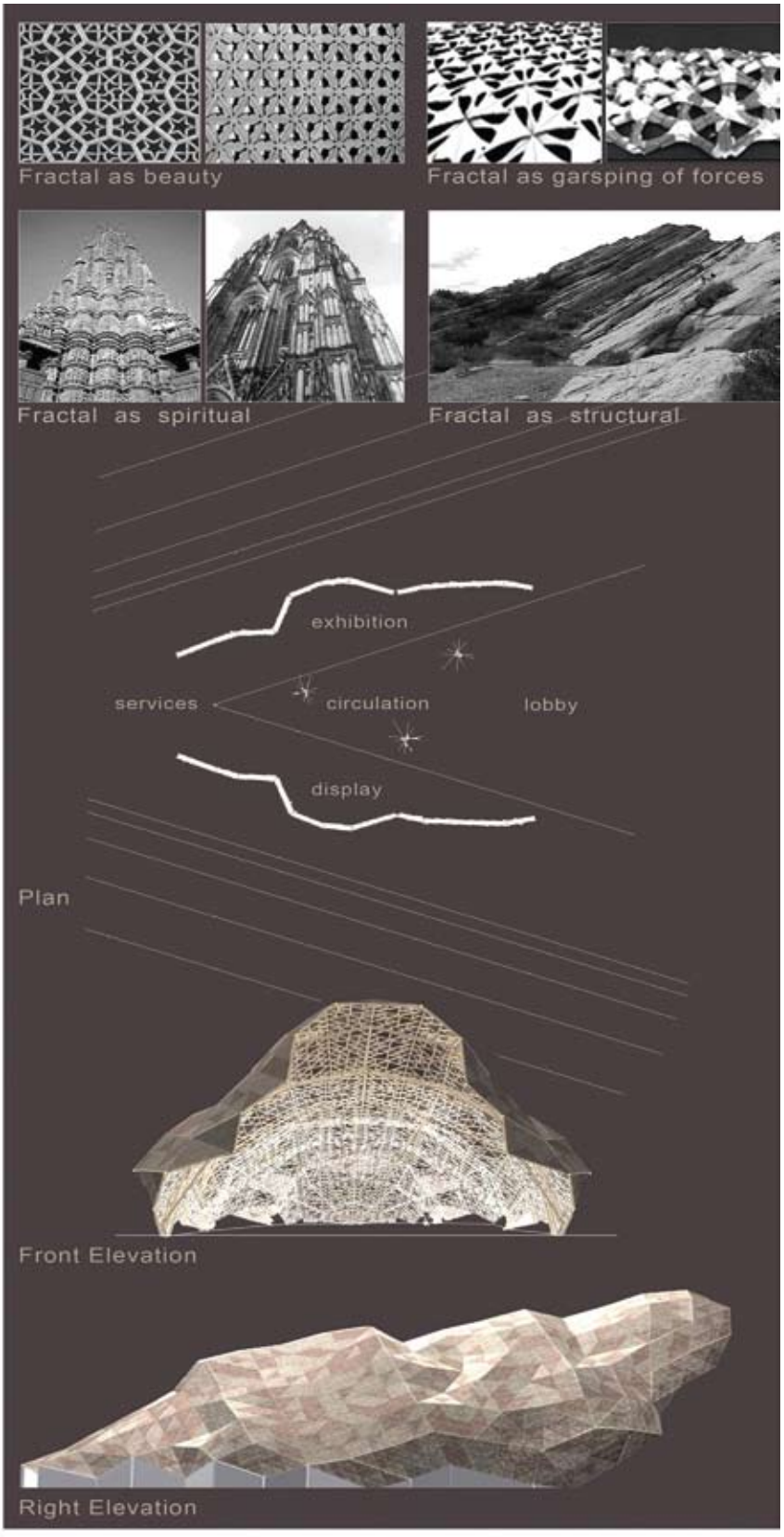
Multi-socket steel bal connects each key nuts tightly, thus the bamboos



Below

Side

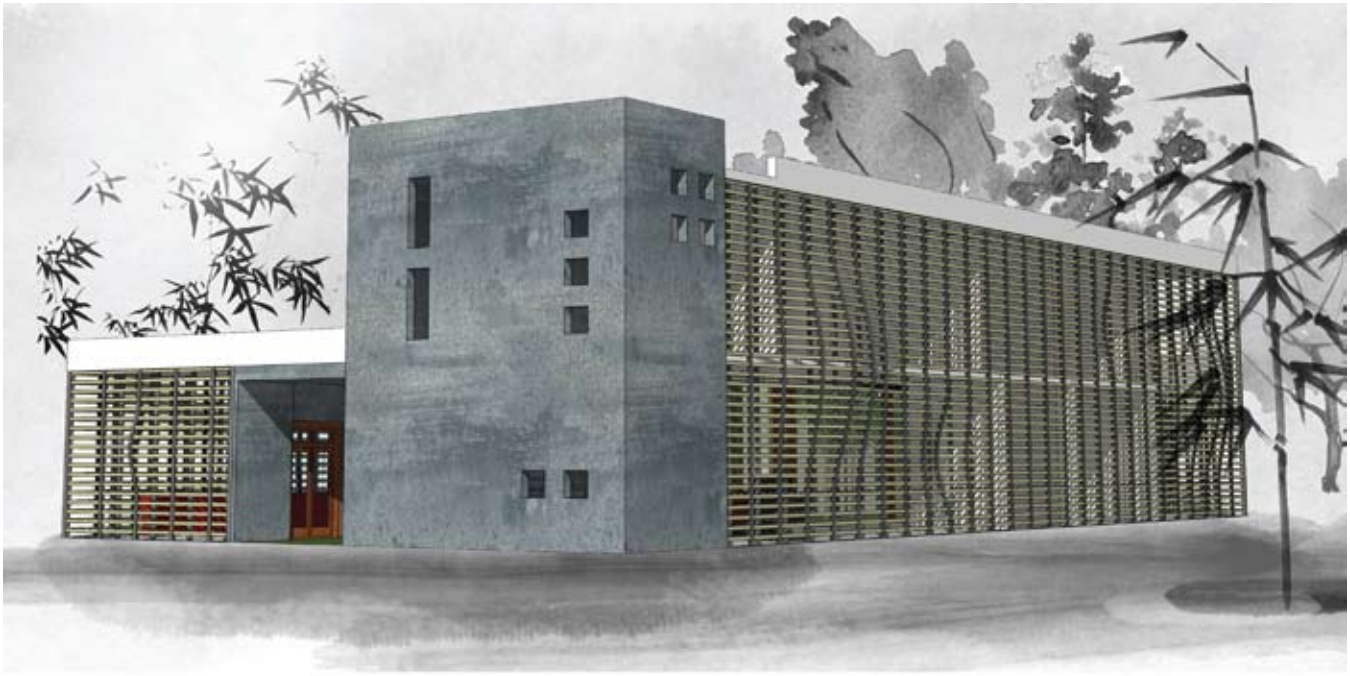
Top

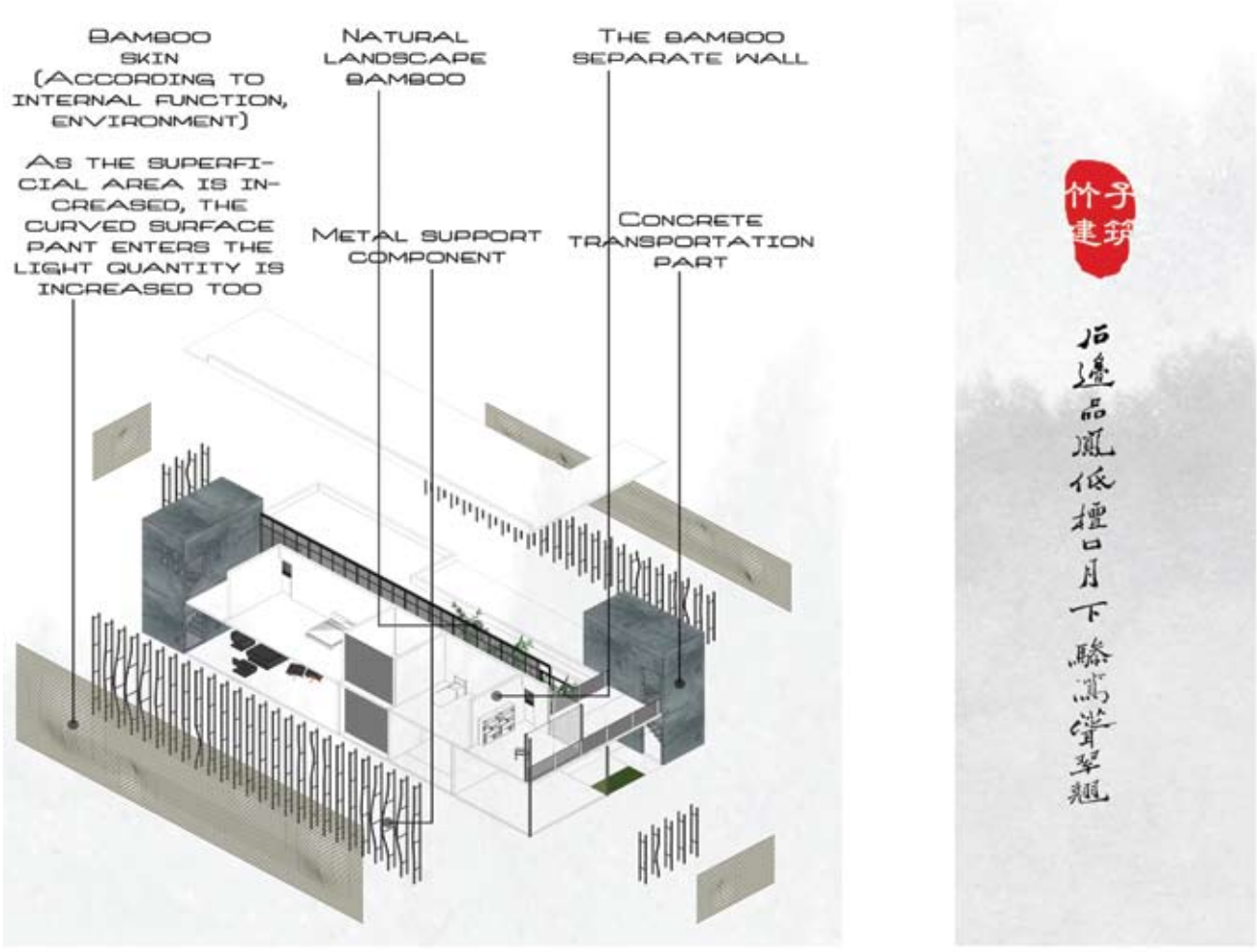


Jasef Md Rian

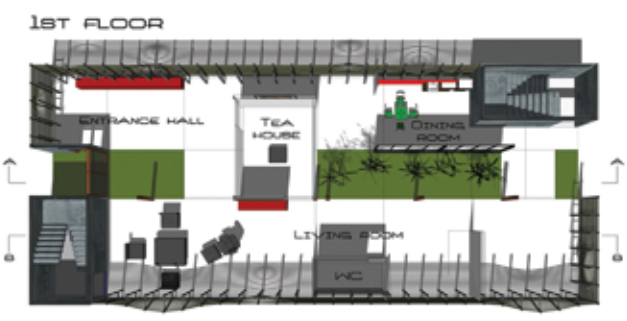
Fractal Pavilion

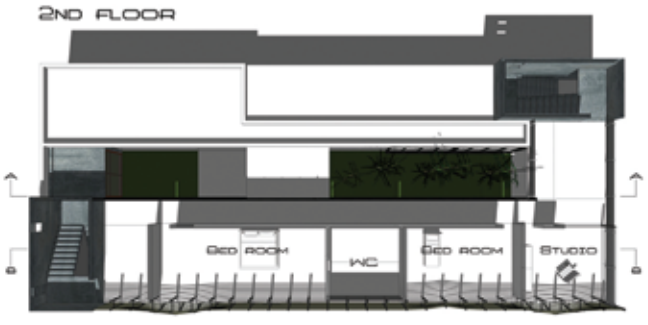
South Korea

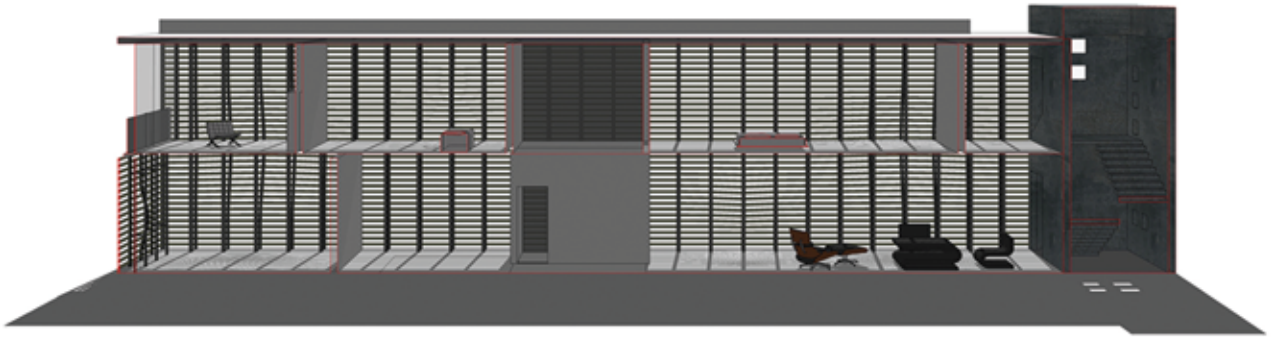




Chen Chen & Liu Xi *Breathe Skin Custom House* China



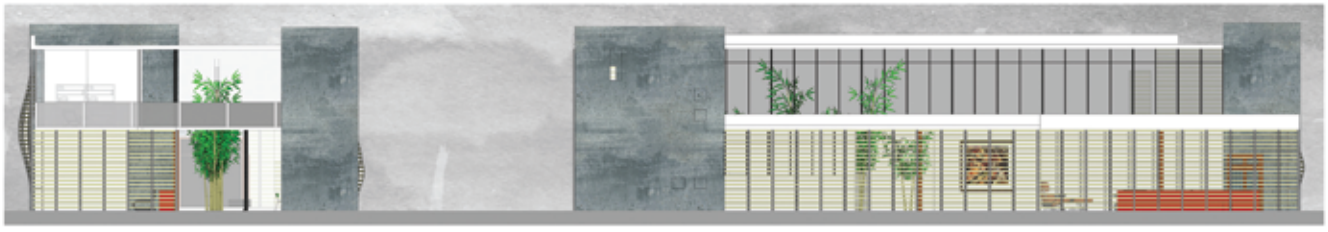




This building is located in the bamboo habitat, and uses natural bamboo products, such as bamboo bar, bamboo board, and uses other modern architectural reinforcement materials, mainly the steel and concrete.

The use of bamboo could make any buildings has good toughness (tensile strength for lumber 2.5 times), inexpensive characteristic and generate curved surface skin. The curved surface is due to the building various parts of functions to the natural lighting need. The curved skin stems are not only to meet the artistic need, more than that, it is based on the ecology consideration.

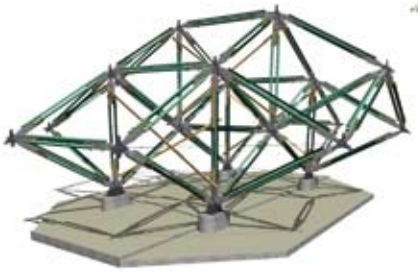
As the superficial area is increased, the curved surface pant enters the light quantity is increased too(on the right side, the 1st floor' s shadow can prove that increase) , thus the building can be better suited in its own function and surrounding environment. This kind of skin, as one of the bamboo material usage, can be used in villas, houses, public buildings, skyscrapers and so on. Combine with other materials, our buildings have more form and larger accommodation.

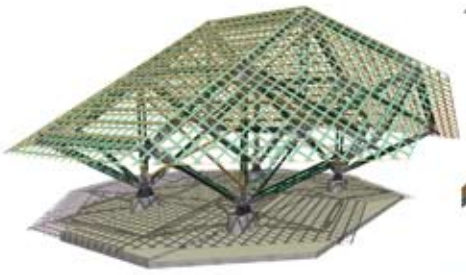


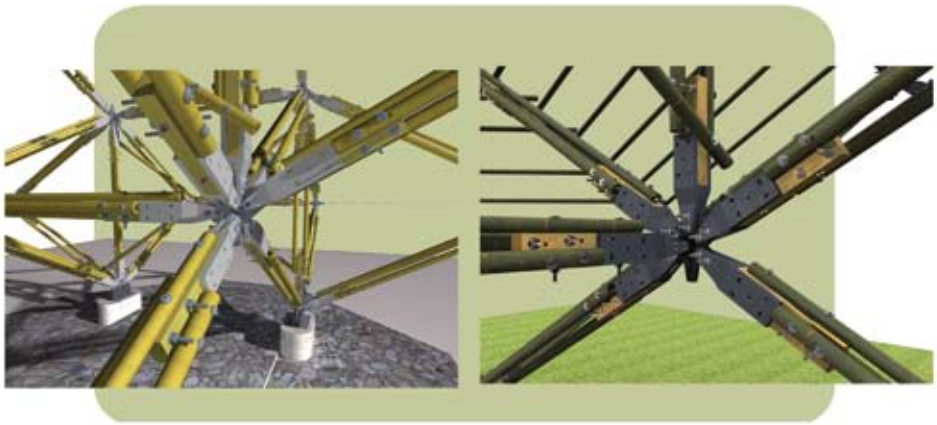
Chen Chen & Liu Xi *Breathe Skin Custom House* China

Named from bamboo shoot, represent the design like a bamboo shoot which always evolving to its perfect size, comes from the pure aesthetics traditional house, growing and evolving to its larger size till this structure design can afford buildings for conference or even shelter.

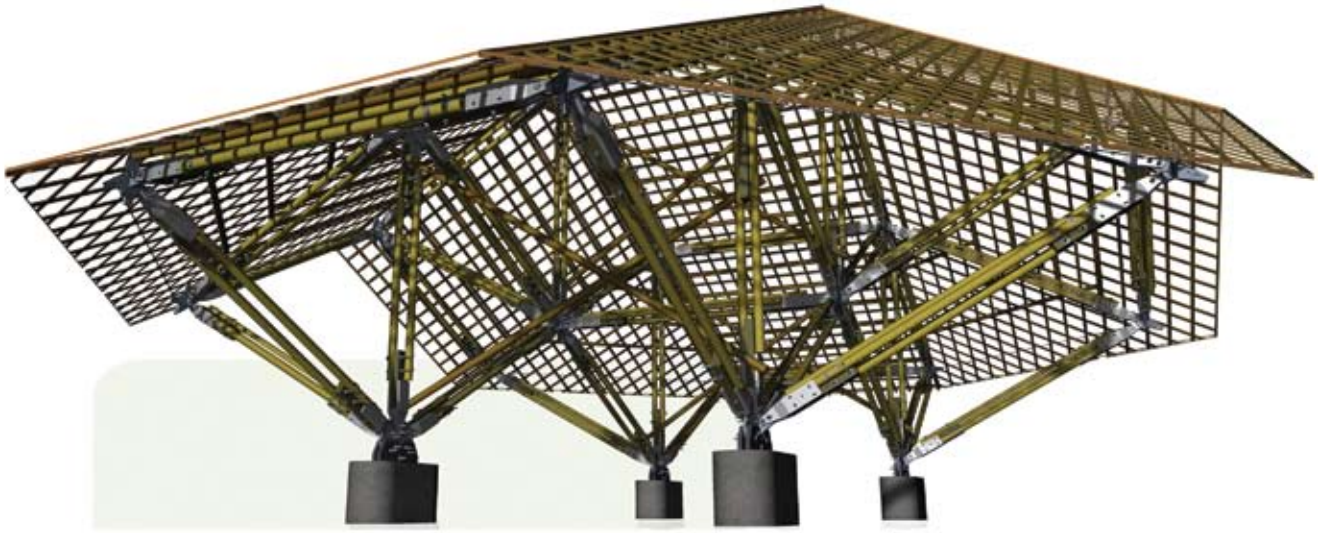
The structural philosophy inspiring this design was the shape of hexagonal taken from the shape of bee nests that strongly rigid. The consequence of this hexagonal structural philosophy is the pure aesthetics of its own shape. The rigid structural philosophy and the pure aesthetic philosophy are the essentials which can't be seaparated from each of them. Aesthetic philosophy of a building being influenced by where the building be built, as geographically.

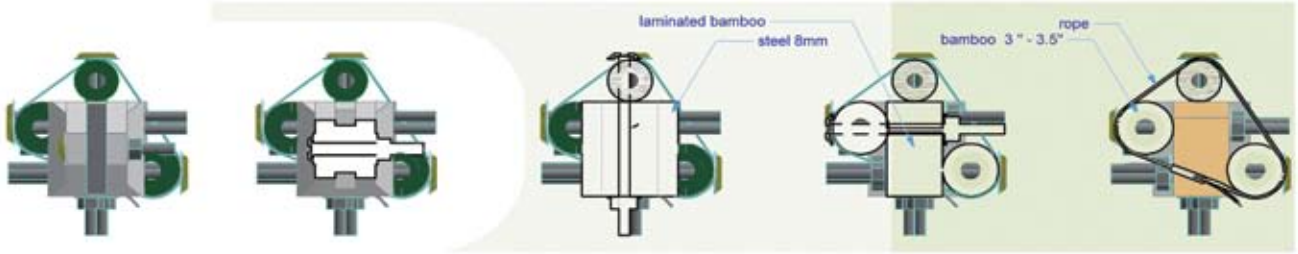




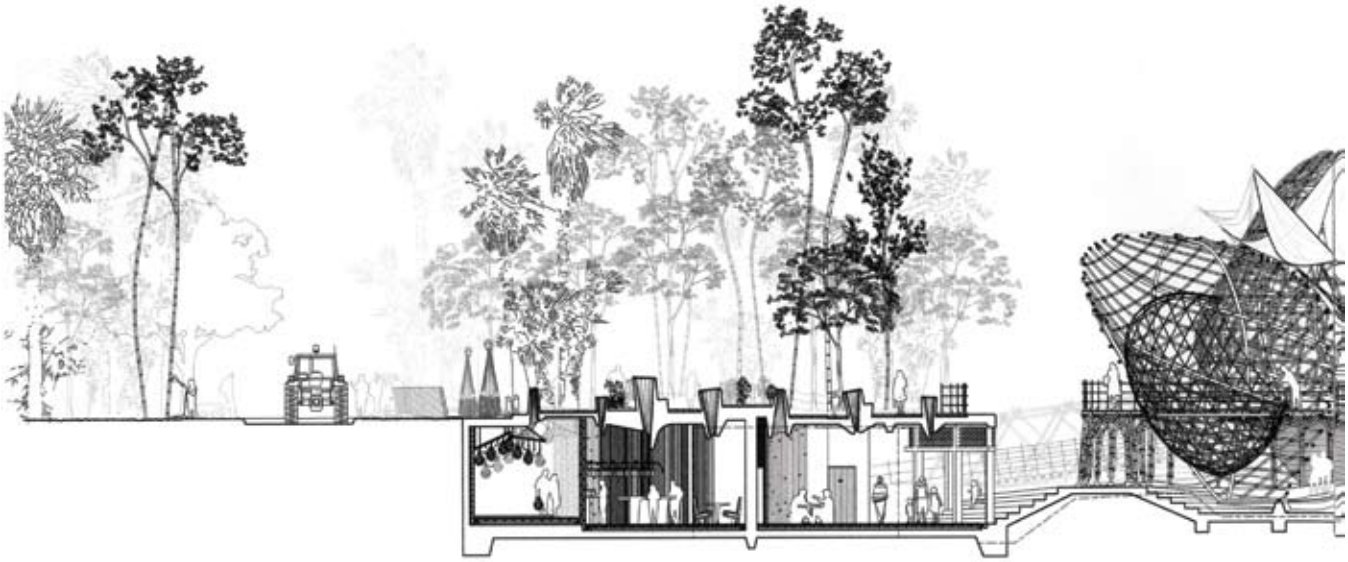


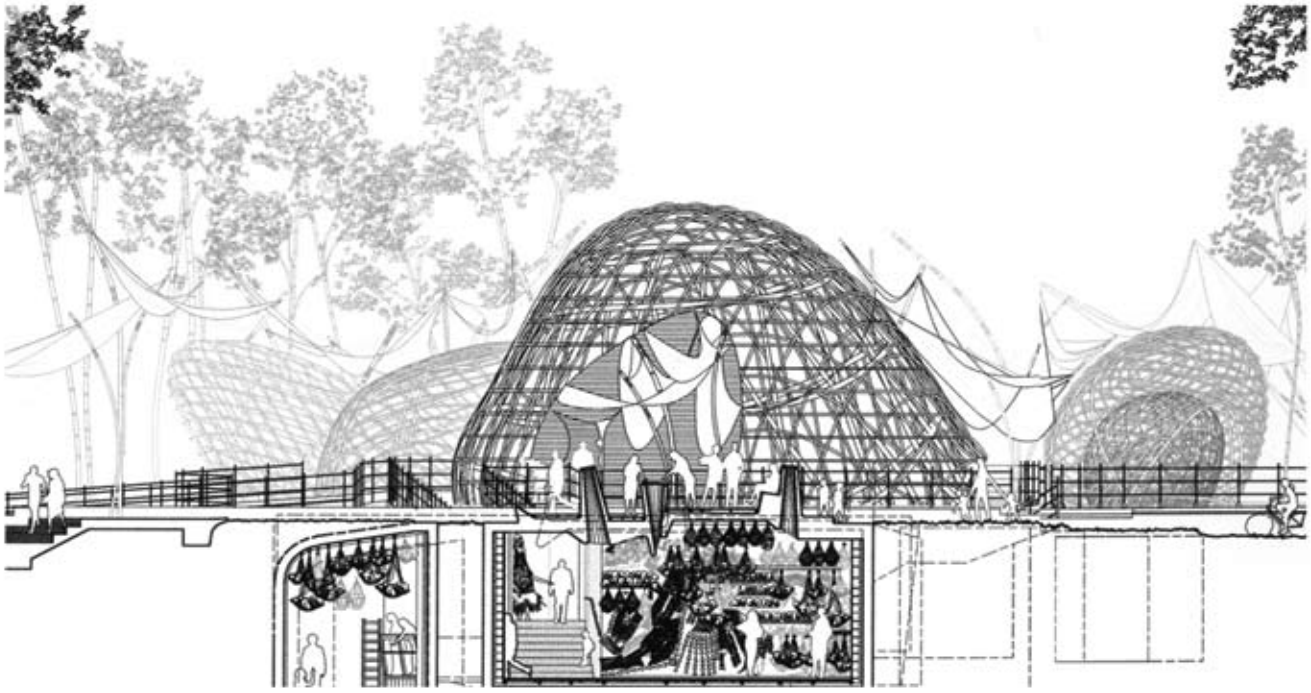
Laode M. Abdi *Evolving Shoot Pavilion* Indonesia

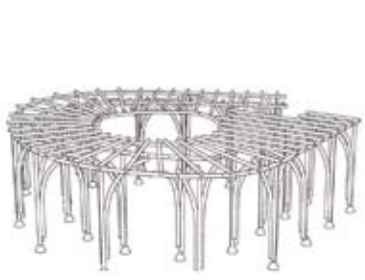


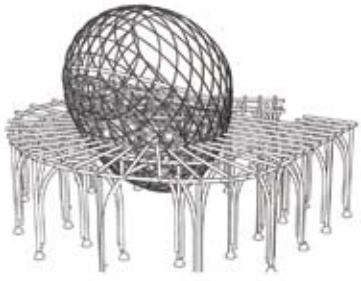


Laode M. Abdi *Evolving Shoot Pavilion* Indonesia

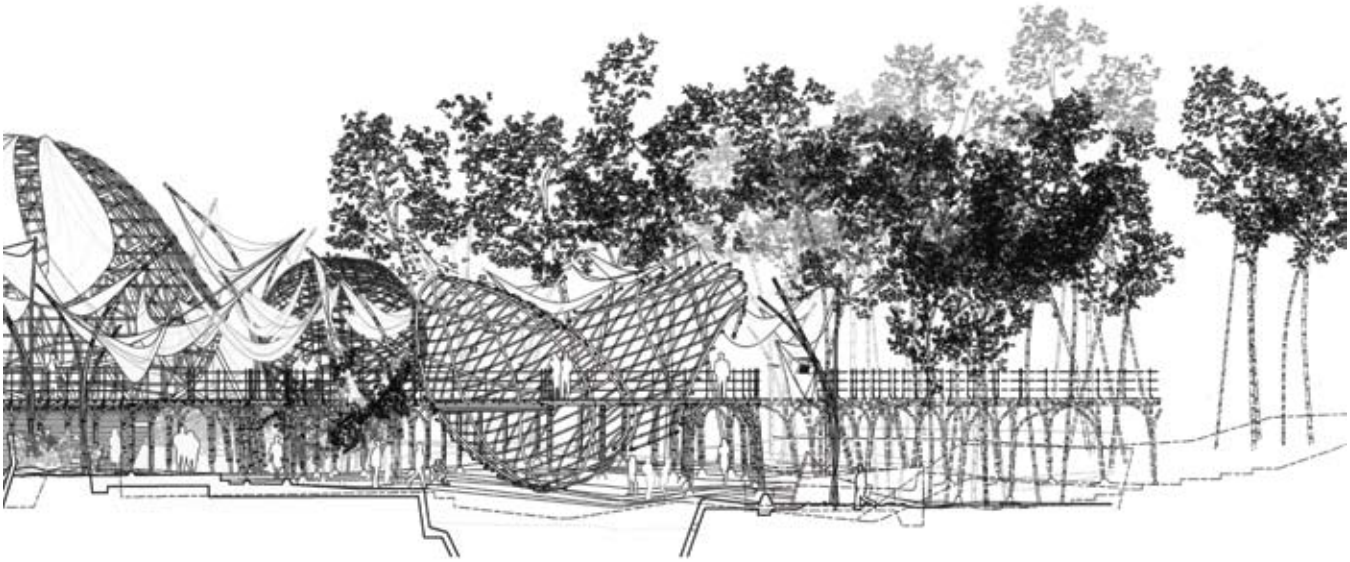








Ben Cowd & Sara Shafiel *Palo Monte Ritual Centre for Havana* UK



DESCRIPTION SUMMARY:

The project is a building design for a Palo Monte Ritual Centre, situated in The National Botanic Gardens, Havana, CUBA. The Palo Monte is a popular Cuban religion that originated from the Congo region in Central Africa. The building aims to educate visitors and tourists of the true practice of Palo Monte, unveil the mysteries behind the religion and lay to rest the common misconceptions and myths surrounding it.

65% of the building will be constructed using bamboo. We experimented with bamboo forming, bending and layering techniques to create the 7 Spiritual 'pods' in the building. Each pod represents a specific god and responds to the very unique functional, spiritual and symbolic requirements of the Palo Monte. All columns, floors, ramps and handrails are built using traditional bamboo construction techniques.

The building is hoped to be an opportunity for Cuba to experiment with this sustainable building material and learn and develop the various processing and construction techniques to enable them to use bamboo throughout Cuba.

Palo Monte Ritual Centre, National Botanical Gardens HAVANA, CUBA.

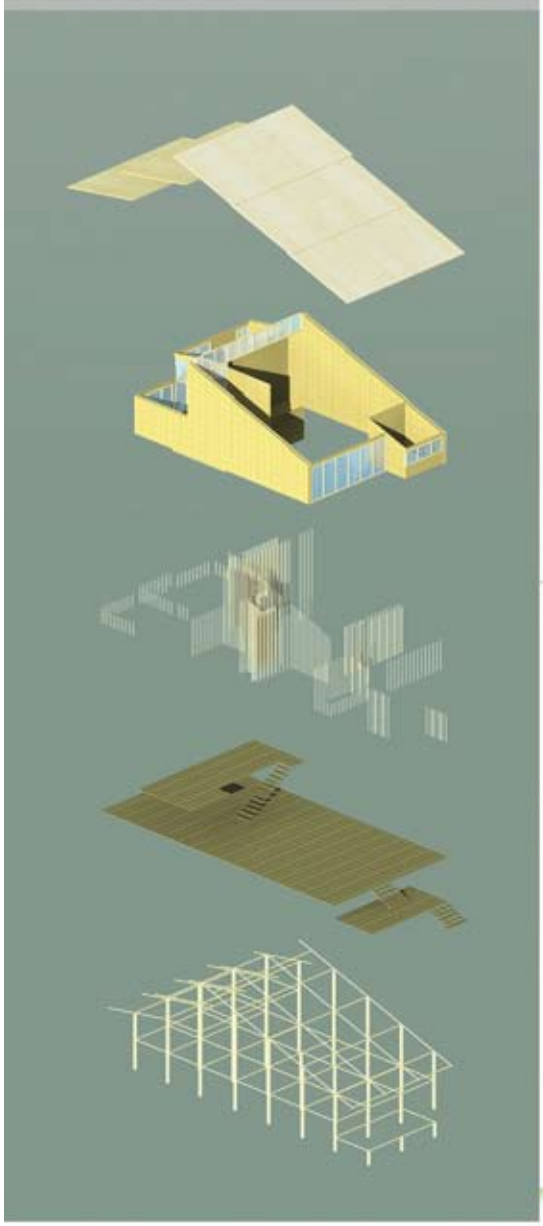
Ben Cowd & Sara Shafiel *Palo Monte Ritual Centre for Havana* UK

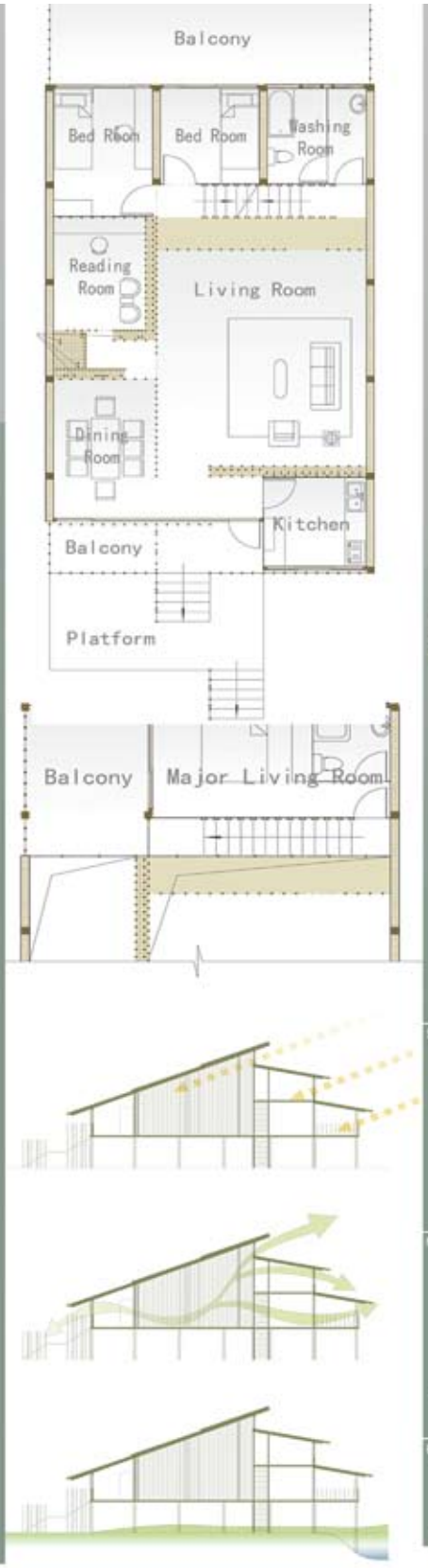
Bamboo in Yunnan is cheap, good in quality and nice. Almost every Dai minority person has the adept bamboo skills.

Bamboo Mat | Bamboo Tile | Bamboo Roof | Bamboo Windows | Bamboo Collum | Connect 1 | Connect 2

Wang Uing — *New Dai Minority House for Harbin* — China

New Dai minority bamboo house reserves the forms that can be lasted in the traditional bamboo house so that the Dai minority people could feel this meaning of the traditional bamboo house. Meanwhile the space inside that is not suitable for morden life would be divided for the new life style. Different density bamboo partitions have different functions. The meaningful bamboo partition brings much interest to daily life.





The traditional Dai minority bamboo house has a history of 3000 years in the south of Yunnan Province in china More than 1,000,000 Dai minority people live in bamboo houses for generations and they all have a deep feeling to the bamboo house. The bamboo house is wet-proof,convenient and against earthquakes. It forms a kind of architecture culture,and has become a valuable tour resource in Yunnan.

But, with the developing of the economy and the changing of the life style, the traditional bamboo house can't satisfy the function and aesthetic needs. The modern Dai minority cannot live in it.

By using the rich bamboo resource and the adept local bamboo skills, finding the advantages of bamboo characteristic property sufficiently, recommending Chinese traditional garden treatment methods, the Dai house in bamboo house is expected to satisfy the modern needs.

The traditional Dai minority bamboo houses in Jinghongmanmai Village layout by the falling-apart principle.

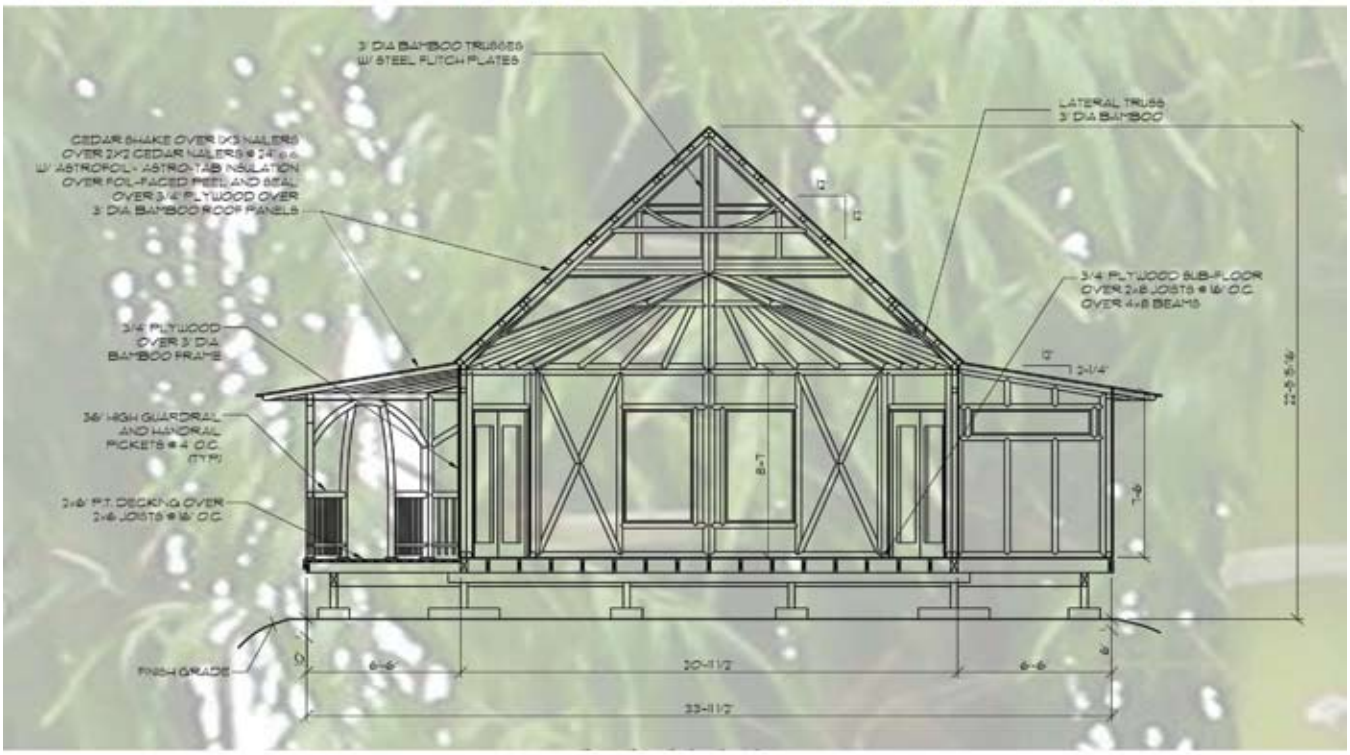
By using displaying method this design want to popularize new Dai minority bamboo house and keep environment texture.

REGISTRATION NUMBER : 1507

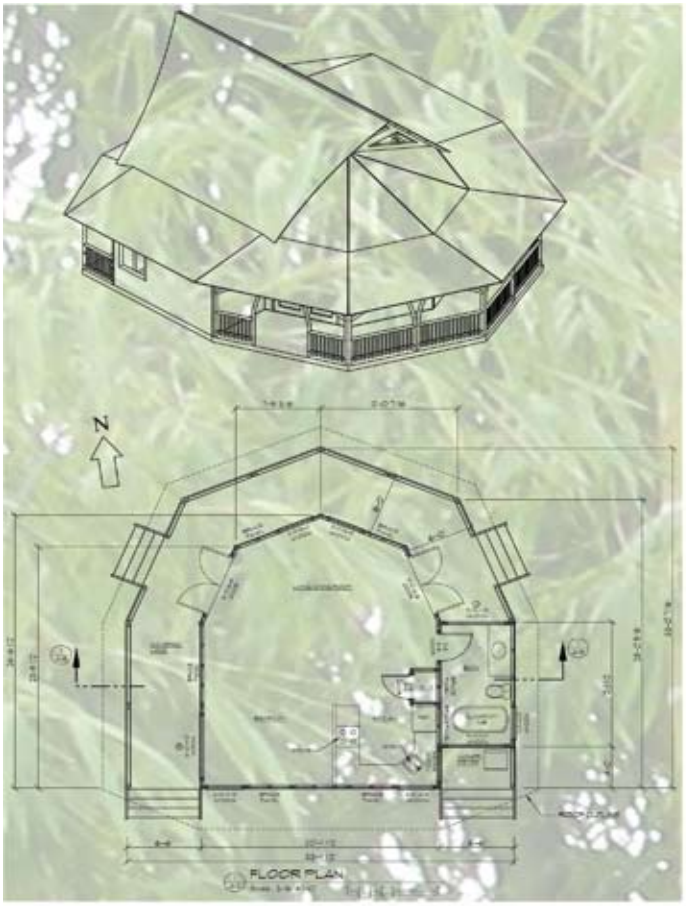
Wang Uing

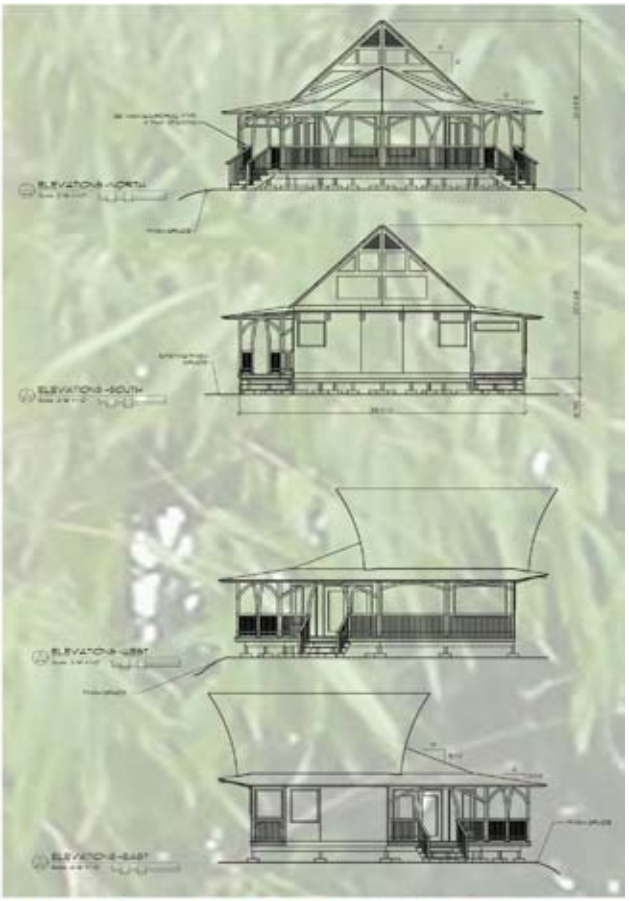
New Dai Minority House for Harbin

China



David Sands & Jeffree Trudeau *Thai Hale in Maui Hawaii* USA



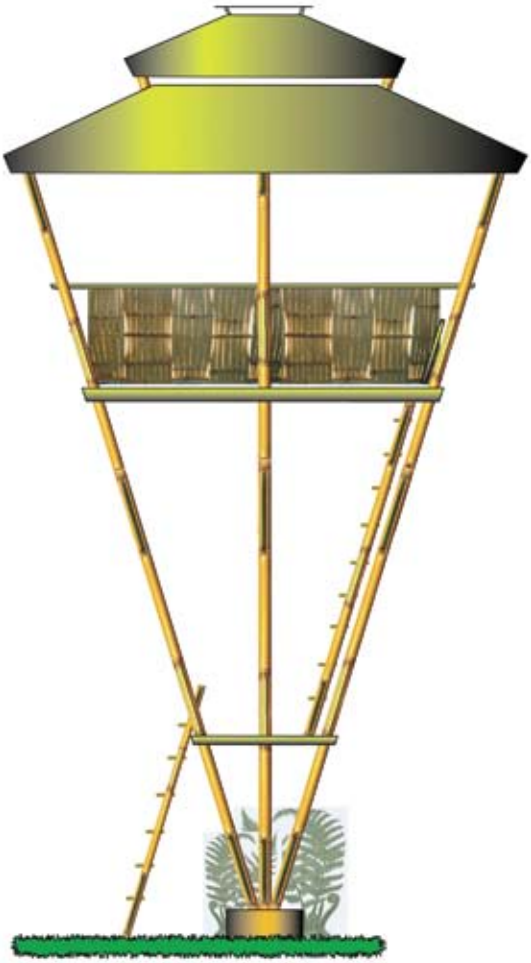


Thai Hale

PROJECT DESCRIPTION

THE THAI HALE IS A FUSION OF SOUTHEAST ASIAN AND HAWAIIAN ARCHITECTURE. "HALE" IS HAWAIIAN FOR HOUSE, AND THE THAI HALE HAS A NUMBER OF THE CHARACTERISTIC ELEMENTS OF A HAWAIIAN HOUSE INCLUDING A HIGH SLOPED ROOF AND COVERED "LANAI" OR DECK AREA. THE THAI HALE IS A WONDERFUL RESORT HOUSE AS IT REFLECTS THE PLAYFUL ESSENCE OF THE TROPICS AND ALLOWS VACATIONERS TO ESCAPE INTO THEIR OWN JUNGLE RETREAT. THE THAI HALE IS SET IN A BEAUTIFULLY LANDSCAPED SECLUDED GARDEN WITH STUNNING OCEAN VIEWS.

David Sands & Jeffree Trudeau *Thai Hale in Maui Hawaii* USA



The hooch design incorporates structural bamboo poles originating from a single point foundation and radiating upward to support the living area. It is a pre-fabricated treehouse utilizing a cable network to surrounding trees for stability. The single point design strategy allows the hooch to be situated in almost any terrain. Indeed, the hooch requires no alteration of the site, and actually ties to the natural environment, as part of, not apart from. The hooch is ideally situated in a grove of bamboo or trees, but can be erected in treeless or bambooless areas with gound anchor supports for the cable network. The hooch provides a high living space with concommitant privacy, safety, view, and beauty (The dimensions fit the golden ratio). As a treehouse, the hooch requires no special engineering or design to fit in a particular tree, or questionable support from tree limbs. It does rely upon tension technology that has been established for over 100 years. The hooch serves as a backyard getaway, a vacation retreat, a spare bedroom, or a perch to view and be with nature. Equipped with woven bamboo beneath a wrap-around counter and a large overhang, the hooch is perfect for the tropics, or as a seasonal retreat in more temperate climates. Having a small size(Less than 120 sq. ft.) and with no permanent foundation, the hooch is exempt from most building code regulations. Additional amenities, alternative building strategies, and climate motivated building envelope embellishments are easily adapted.

Jo Sheer

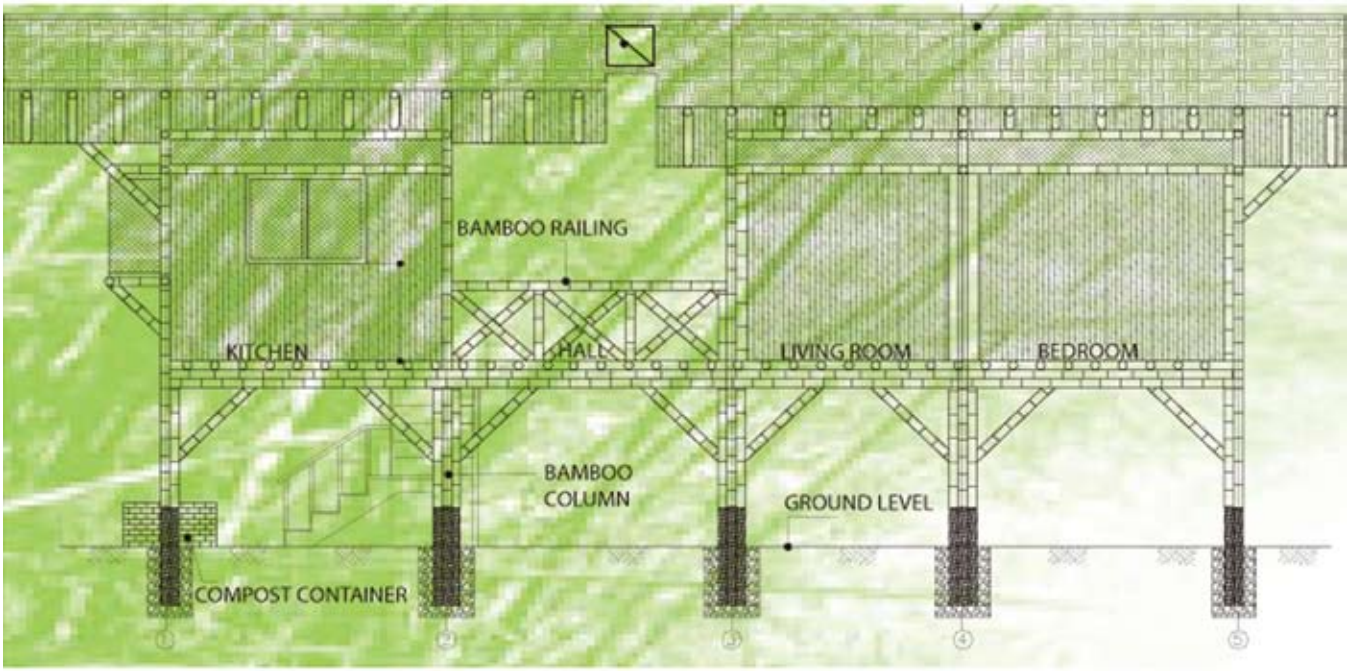
The Hooch Treehouse

USA

Sustainable Housing design is based upon their needs and life style but respecting culture and ancestral traditions.

Materials such as "Chonta", known as pejibaye wood; used to manufacture pins for joining parts of the structure. "Manu", a type of wood, is known for its hardness and durability even when in contact with this humid soil. "Suita", type of palm used for thatching the roofs. Rocks, used for the construction of house foundations. And "Bamboo Guadua", that is found profusely especially on the "river side galleries". Several types of vines and natural fibers are also employed for making lashings, knots and other several purposes.

Renewable sources of energy are been suggested such as solar panels, animals excretes to generate methane gas for cooking purposes and compost tanks to produce organic fertilizers for food cultivation.



Mauricio Herrera Mora *Guadua Housing in Costa Rica* Costa Rica

• Diagram showing the structure's ability to resist lateral forces.

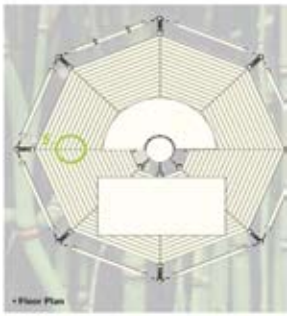
• Render of sample placing of treehouse on a beach.

• A variety of possible roofing materials.

• Rendered Axonometric of tree house.

The tree house has always been a place of safety and seclusion. Originally used as tribal hunting outposts, the tree house became an artifact of luxury during the times of Ancient Rome, the Renaissance, and the Romantic Period. Our tree house strives to create the sense of privacy and peace in an otherwise public area, such as a beach or park. Utilizing bamboo as both a structural and aesthetic material, the tree house is a simple yet effective architectural form.

While our example places the structure on a palm tree, the tree house can be placed around any straight tree with a tall trunk. The tree house uses Bambusa Stenostachya (3" diameter poles). This is the only structural bamboo now approved by the International Code Council (ICC) for code approved building construction. The design utilizes bamboo to the maximum potential of its structural properties, especially as a tension member. Structurally, the design utilizes large tension members to support both the living platform and the tree. Hinged connections allow the structure to move with wind and tectonic movement, rather than forcing a rigid form that may lead to greater structural failure. The majority of connections in the structure are modern steel connections in order to transfer weight effectively. While they appear complex, the design allows for the same connection to be used multiple times, as seen in the metal brace around the tree. Floor joists are attached to beams with ropes and peg connections. Shear failure is resisted in bolt connections with help of mortar injected tips. Furthermore, the structure is designed to create minimum impact on the host tree. The platform uses metal braces which do not penetrate the tree itself. The tree house can be removed easily at any time without any damage to the tree. Overall, the aesthetic design of the tree house strives for honesty of the material, displaying the bamboo as both a material of beauty and strength.



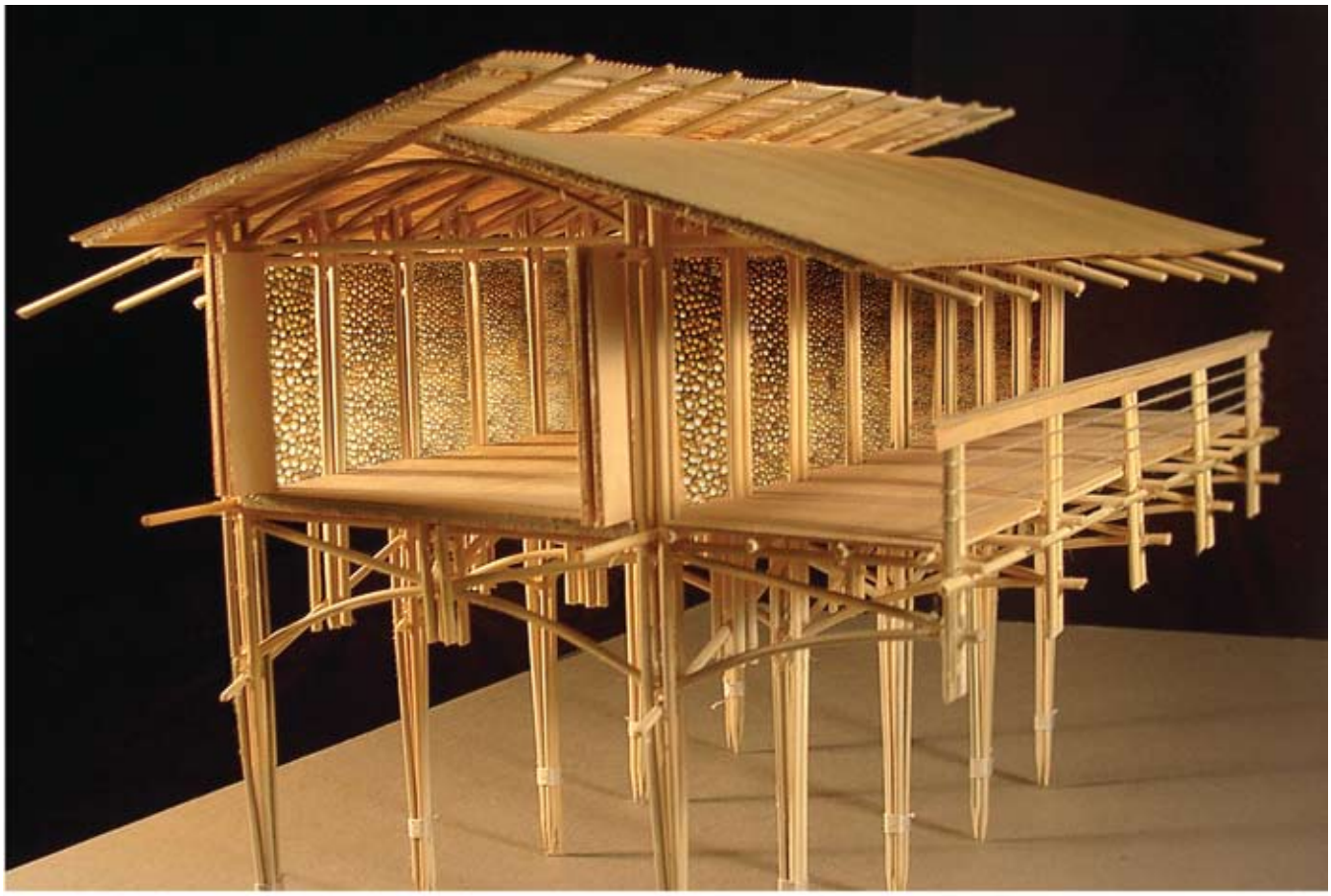
• Floor Plan

• Steel brace connection details at bottom, middle, and top portions of treehouse. Each node is calibrated differently for its respective condition.

• 3-way connection at arched tension members.

• Rope and peg connection of bamboo floor joists.

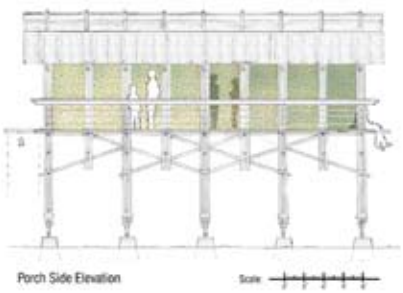
Terry Hon-Tai Sin & Ventzislav Pavlov *Tree Pod* Canada



Plan

The elevated resort house offers a simple yet effective design response to the connection of the structure to any surrounding landscape. The small house contains a living area and a bedroom area connected by a bath and kitchenette. A series of doors merges interior and exterior space by opening up to a large covered porch that spans the entire length of the structure. In addition to the porch, both ends of the house can be completely opened to the surroundings with a system of folding shutters.

Fleeting strands of sunlight will percolate through the rear wall of the structure, creating a softly glowing interior backdrop. The transient nature of the illumination will change from day to day and hour to hour

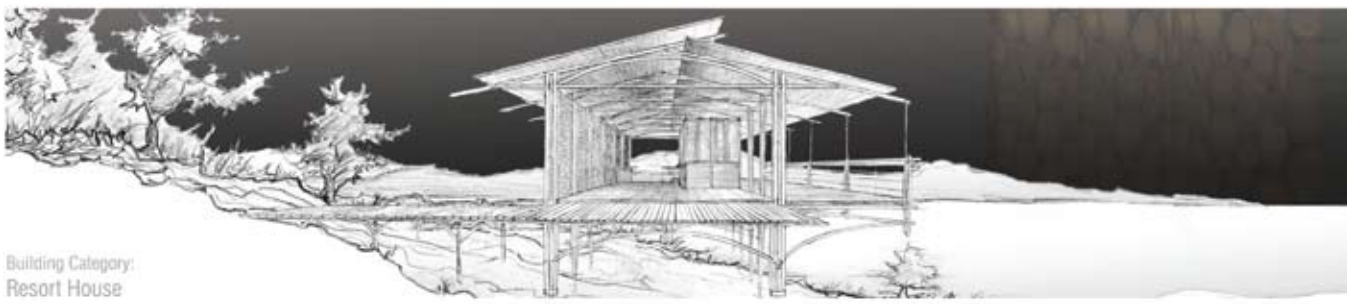


Porch Side Elevation

Scale

providing a sense of place and time, in turn creating an atmosphere that is alive with spirit and character. The wall is composed of hollow sections of bamboo stacked in a horizontal orientation which will be fixed with a flexible epoxy. The lengths of the sections gradually increase in length towards the private bedroom zone creating an appropriate lighting and sense of privacy in respect to program usage. Modular sections of this wall type will be used as doors and other screening partitions.

The structure can easily be placed in any terrain as it set upon pin connections anchored to concrete piers. Entry and procession will thus be reflective of the site conditions. The repeatability of the structure allows for sections to be pre-built and then placed on site with ease.



Building Category:
Resort House

Mark Kline — *Bamboo Pole House* — USA

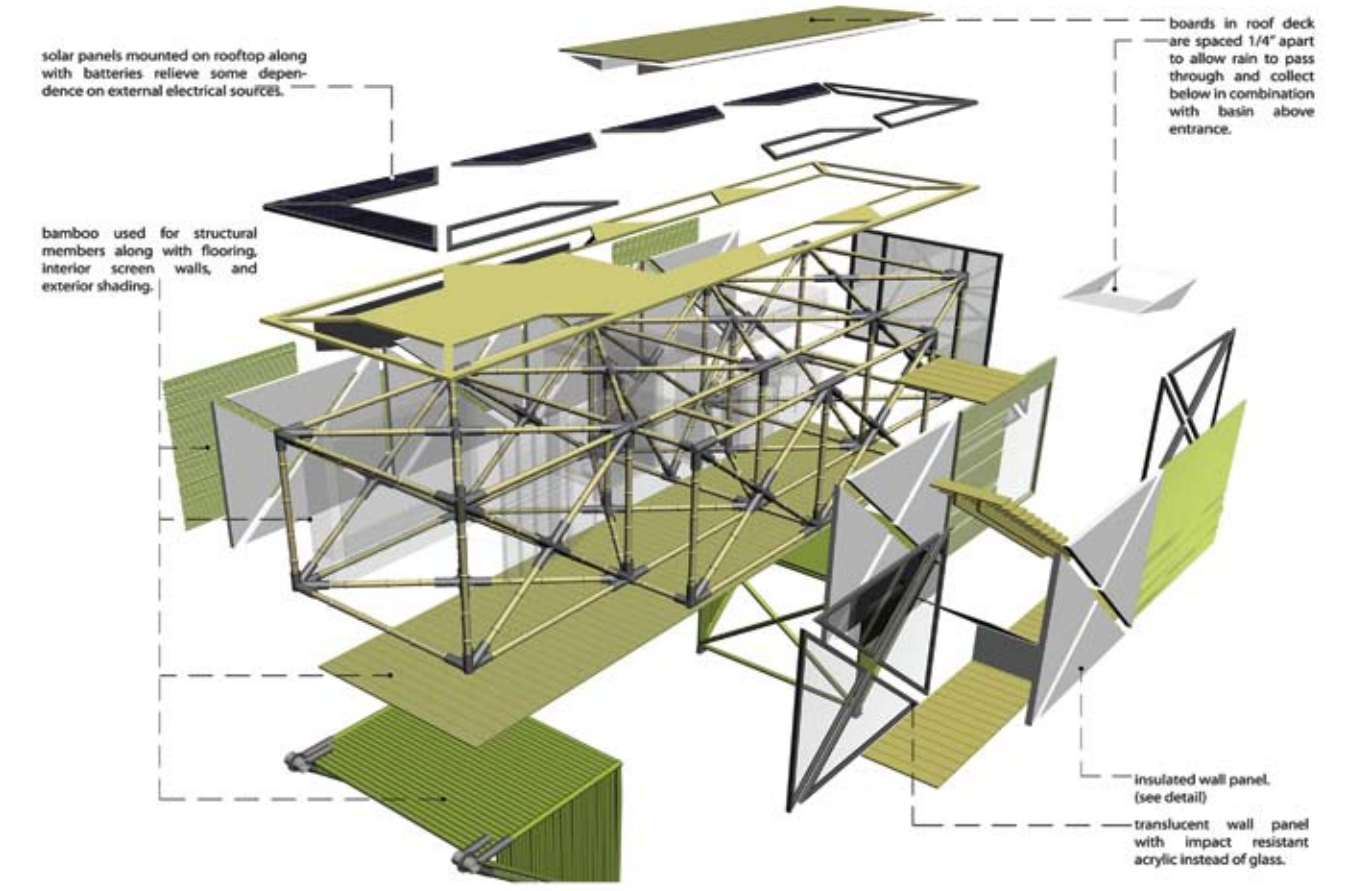
Linx House is a prefabricated, non site-specific unit ideal for short term housing in response to a sudden need for shelter. The house is available with the option of 1 living space (400 interior s.f.) or 2 (combined 800 interior s.f.) depending on the specific needs of the owner. The primary living space is located ten feet above the ground in order to avoid high water levels and to ensure the safety of the inhabitants. The height of the roof deck is twenty feet above the ground and is accessible in the event that flood waters force emergency evacuation by boat. For areas prone to receive high winds (hurricanes, tsunamis, etc) the shade roof can be lowered to cover the two large windows from wind projected debris.

The primary structural components of the unit are 3-4" diameter bamboo poles. Where traditional bamboo construction has typically been known to fail (at the member connections) steel connections have been substituted. At these connections, the bamboo poles are secured with several bolts. In the event of a ruptured or deteriorating member, each piece can be removed and replaced without disrupting the integrity of the other structural components.

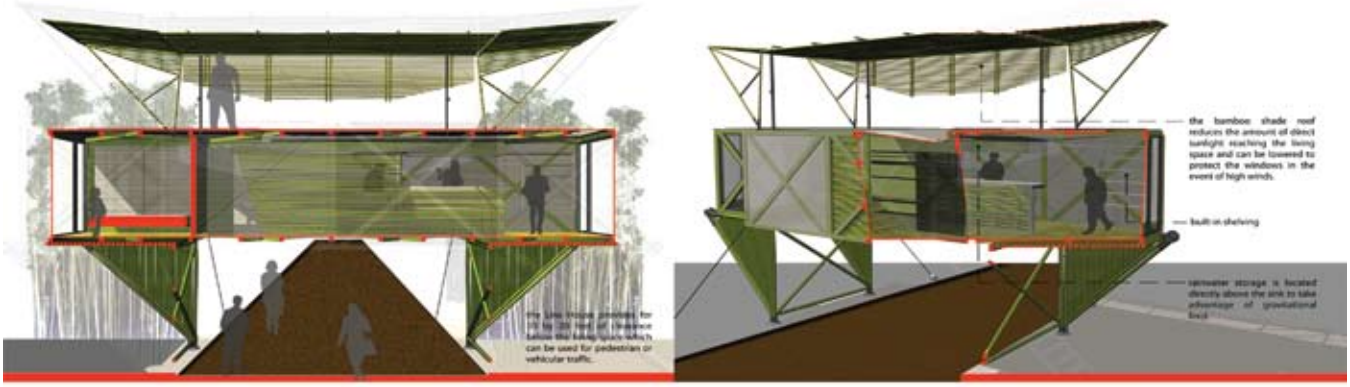
Along with using the renewable resource of bamboo for the structure, floors, interior screen walls, and exterior shading, the unit reserves a large volume for the collection of rain water from the roof to reduce dependency on exterior sources. The water storage tank is located above the shower, toilet, and kitchen sink to take advantage of gravitational feed. Solar panels located on the perimeter of the roof and exterior walls provide some electricity and the shade roof reduces the amount of direct sunlight striking the building.

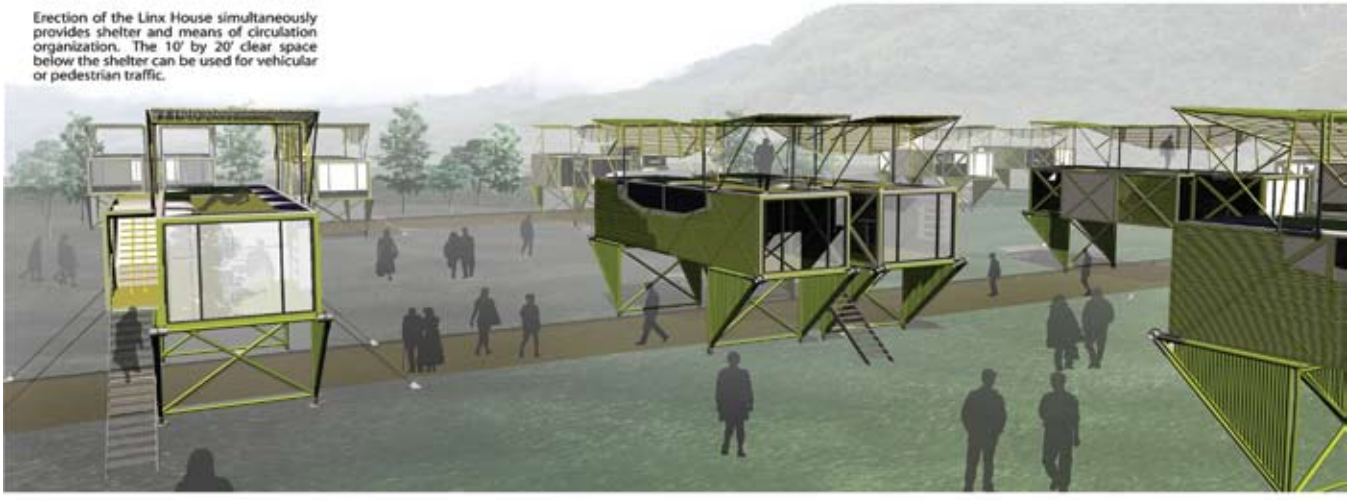
The proposed housing assembly takes advantage of the numerous benefits of prefabricated construction. Off site fabrication is the only construction technique that would allow for a great response in a very short time. In the event that an emergency would create an instant need for a large amount of housing, the Linx House could be shipped to the site and erected within hours. A surplus of constructed units would be ideal in the event of such a need.

Erection of the housing unit simultaneously provides a living space and a transportation route. Having the living space elevated ten feet above the ground provides enough space for pedestrian and motorized traffic to pass below. This would organize and allow public circulation to be conducted below. Pedestrians could traverse along this path, partially sheltered from sun, to a bus or rail station where they could continue their commute to work, thereby alleviating a dependence on automobiles.

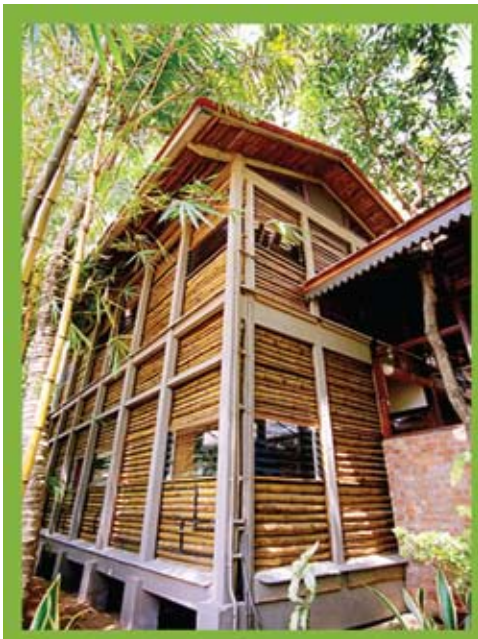


James Patrick Petras — *Linx House Prefab Portable* — USA





James Patrick Petras *Linx House Prefab Portable* USA



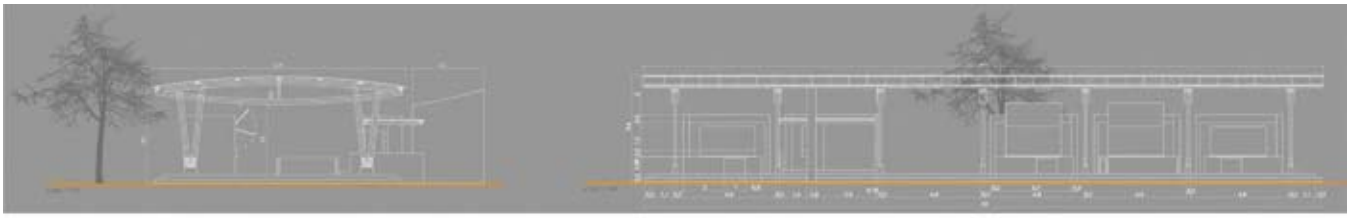
We were able to reduce the use of 70 to 80% cement and steel, by the use of bamboo, if we are to compare with a building of same design built with conventional materials.

Probably the first and largest of its kind in India, Inspirations' office is built almost entirely with engineered bamboo – be it the floor and roof slabs and the walls The office covering an area of about 2750sqaure feet was completed in Dec. 2002. It is noteworthy that almost 25% of the bamboo used in the building was obtained from the neighboring bamboo plantation. All the bamboo used for this building was treated with preservative treatment to meet functional requirement.

Bamboo is used as a composite along with optimized RCC members, ferro-cement and limited quantity of reinforced plaster, so as to arrive at an attractive, functional and cost effective technology .Large glazed windows are given along all inward looking walls which give ample protected lighting and ventilation.

Jaigopal Govinda Rao *Inspirations Office Building in India* India

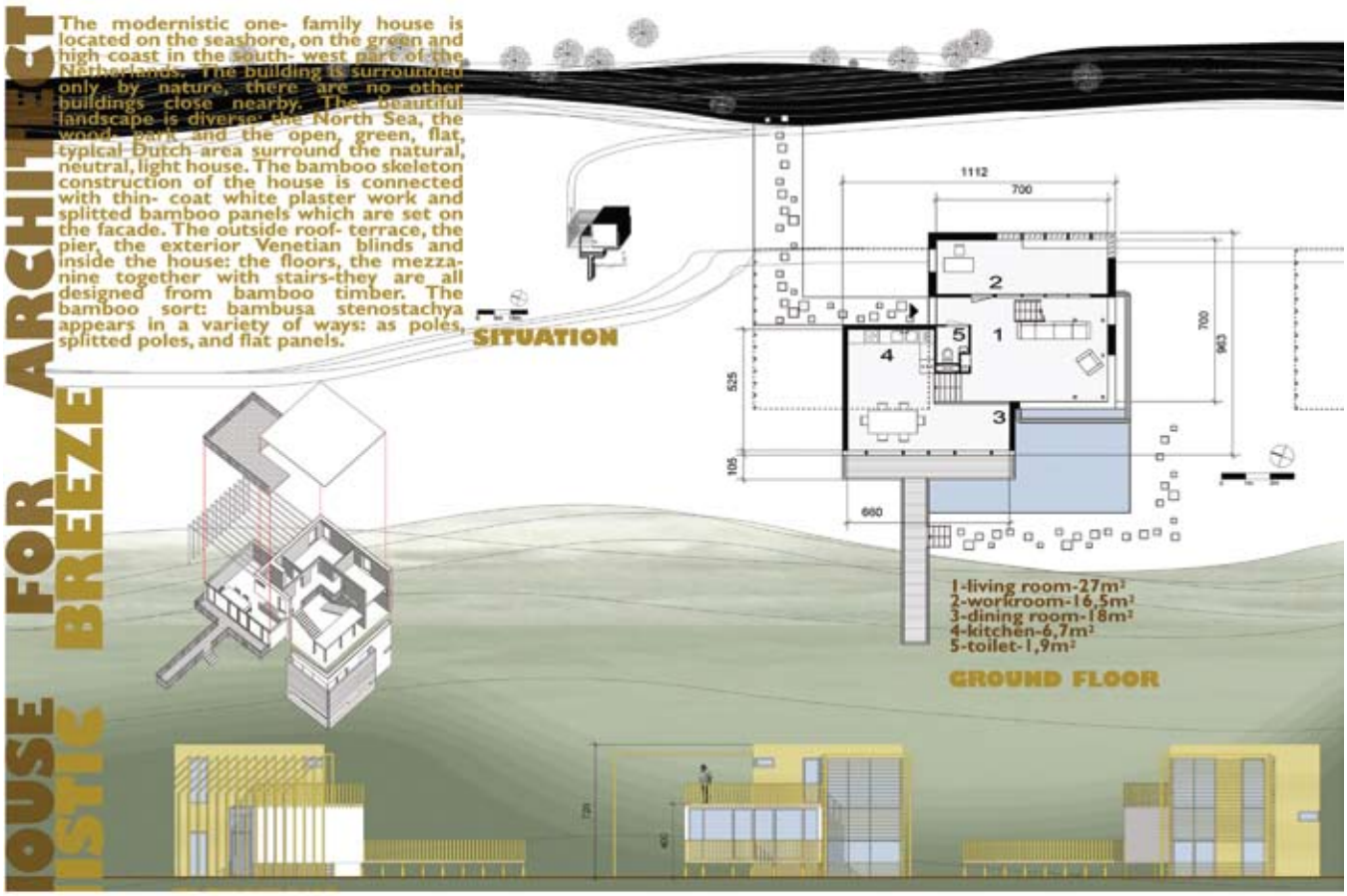
Jaigopal Govinda Rao *Inspirations Office Building in India* India



Sven Detering

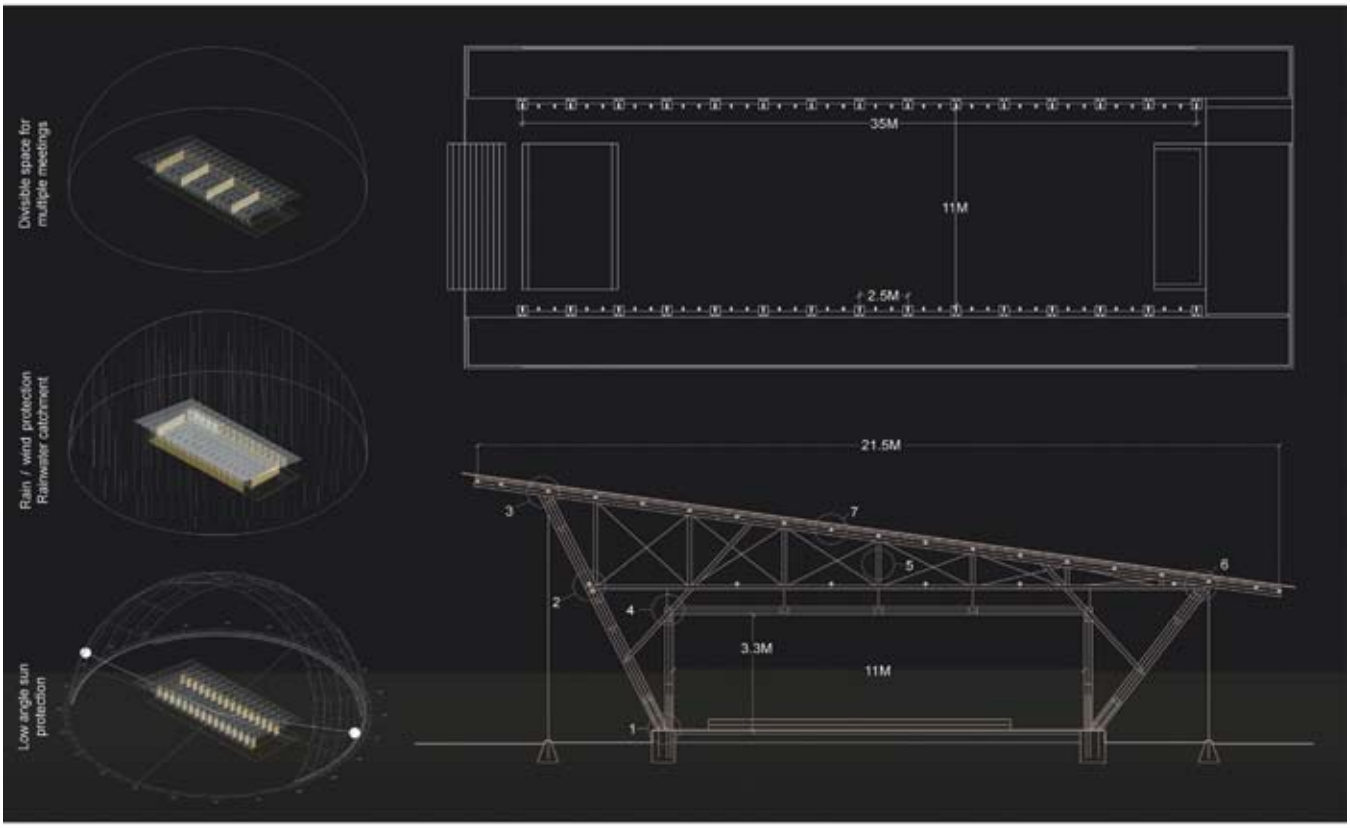
Markethall Pungue in Mozambique

Germany

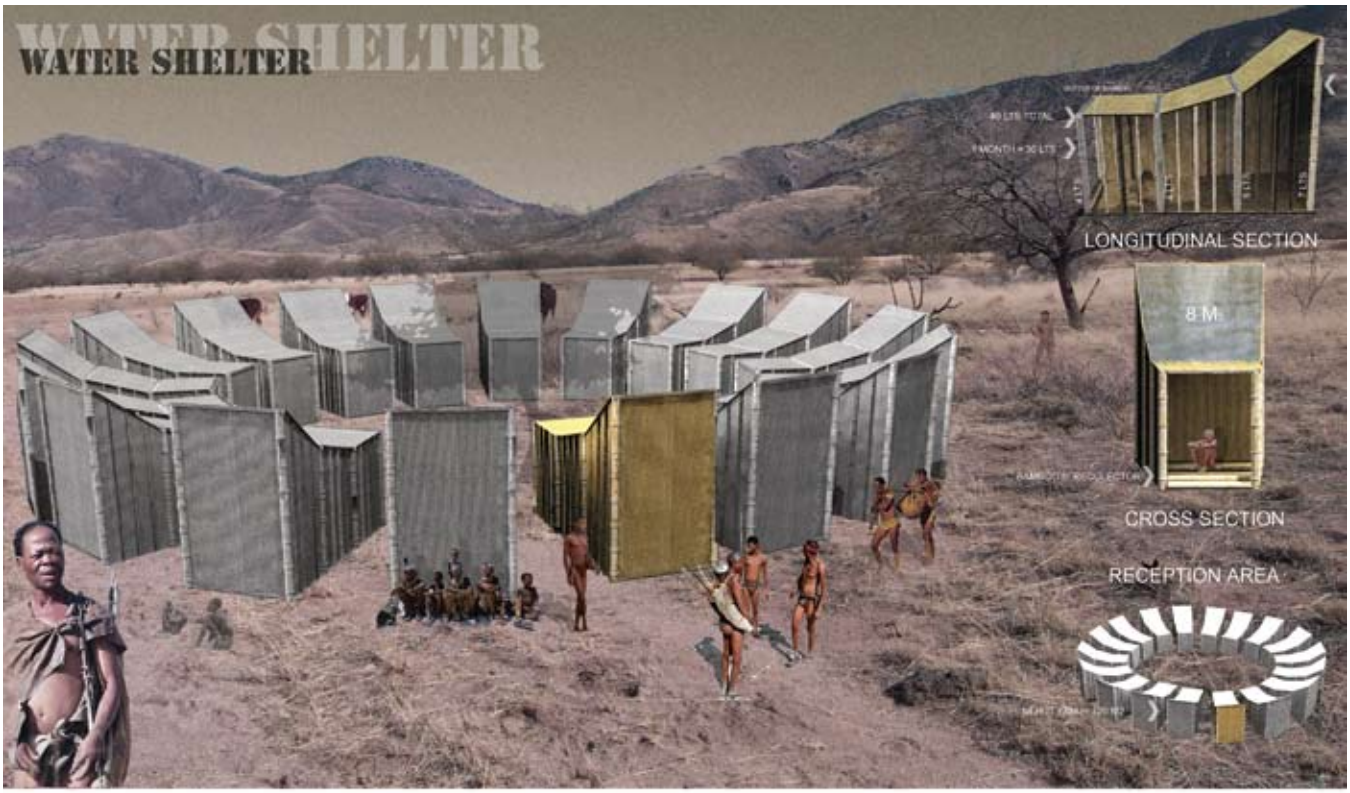


Anna Brodowska & Dimitri van Wezel *House for Architect* Netherlands

The Venilale Community Center was designed in collaboration with the people of Venilale, East Timor. It is located on the main street of Venilale and provides a venue for women, youth, farmers, craftspeople and other citizens to hold meetings, stage ceremonies, attend workshops and share ideas. It serves as a place of convergence and coordination and contributes to increased cooperation between Venilale's citizens. _ The Community Center's design embodies East Timor's birth as a nation and the hopes of fledgling, fragile democracy. A series of bamboo frames form a box at the building's core. They create a concurrent sense of enclosure and permeability and define a place of gathering that is accessible to all of Venilale's citizens. A broad single pitch roof floats above offering protection from the elements and a sense of security. Open ends connect the Community Center to Venilale's main street. They frame a view of the mountains beyond, accentuating the beauty of the landscape and inspiring Venilale's citizens to look towards their future. _ The Venilale Community Center is constructed from the locally grown bamboo, dendrocalamus asper, preserved with the environmentally safe preservative, borax. Adjustable exterior bamboo screens allow Community Center occupants to adjust daylight and wind levels according to the season, the weather and their preferences. Adjustable interior bamboo screens allow occupants to the divide the center into multiple rooms and hold several meetings at once. _ The Center's roof is optimized for solar panels and supplies power to scores of Venilale homes. It also serves as a rainwater catchment surface, channeling rainwater into storage tanks for later use in cooking, cleaning and irrigation.



Ben Spencer & Brian Gerich *Venilale Center for East Timor* USA



20 thousands years living in arid conditions, high temperatures and low quantities of water in the desert of Kalahari have made evolve San people up to the point that they are able to live with only 250 cc of water a day.

Economic reasons, turistic activities and exploitation of an area of natural resources have motivated Botswana's Government to persecute and drive out nomads san tribes from the desert.
In front of the negative of the tribes to leave their ancient lands, the Government destroyed their water reservations and keeps off the entrance of supplies to their lands, therefore the only water they can have in their areas becomes from the rain and the consequents small dams formed by it. The evaporation rate due to the high temperatures causes that the water reservations become minimum for their survivability.

Big international organizations, like Survival -which helps ancient tribes to defend their lives , protect their lands and decide their own future-, are collecting donations to search new methods of survivance in order to allow San Tribes to return to their original lands.

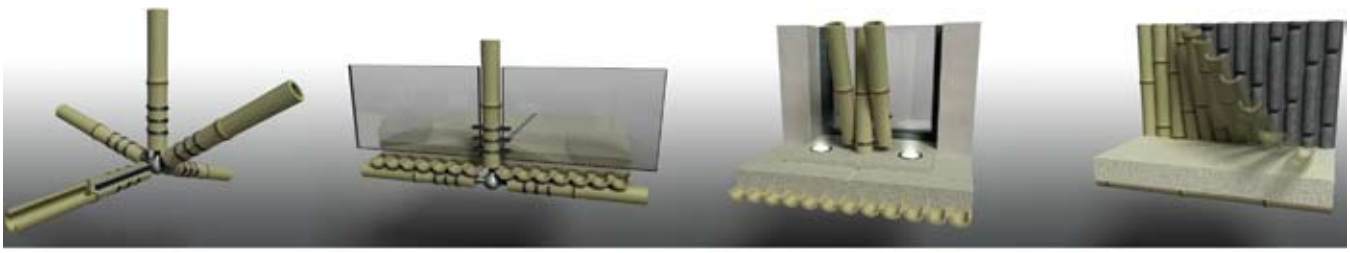
Felipe Carrasco *Nomad Water Shelter for Botswana* Chile

This residence, located in the Mid-West Heartland, provides a lush view of the changing seasons and rolling hills of its site. The house is situated on a south-facing site in a small clearing amid a wooded landscape, completing the scenic picture.

The design for this 3000 square foot high-end specialty house utilizes the linear nature of bamboo to create an interplay between lines and planes. The roundness of bamboo separates it from classic post and beam construction and renders itself in a variety of curvaceous forms as the dwelling emerges from the landscape. Massive, planar forms dominate the northern realms of the house to provide thermal mass, as well as an anchor point for this flowing organic structure. The building utilizes this transition between linear, airy structure and massive, planar forms to demonstrate the many purposes that bamboo can fulfill.

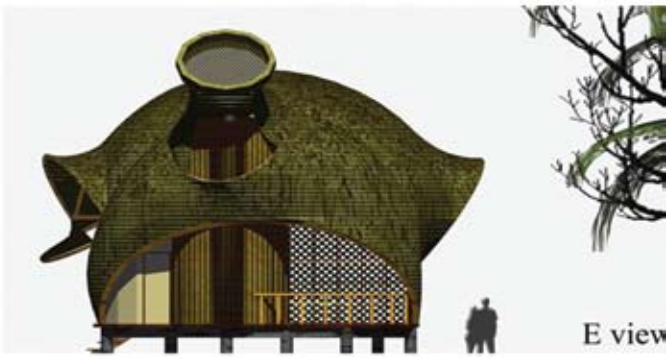
Bamboo is employed in an array of applications ranging from curvilinear ceiling surfaces to undulating screens. A layered grid of bamboo poles, rigidly joined, forms the overlying structure of the house. This undulating composition flows around a massive hearth and delineates private and public spaces to create a layered dwelling. Bamboo also lends itself to the hearth by providing a unique formwork, embedding its relief upon the surface of the concrete. These pieces are then exploited as tension members in a composite flooring system.

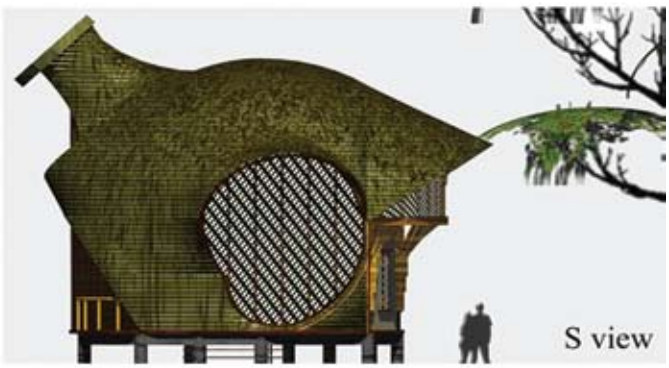
This passive solar dwelling nestles into its landscape by forming a complex layering of spaces. The great room is flooded with southern light from its soaring, two-story glass walls. Private spaces divulge from this point, wrapping down around the massive hearth into the earth or ascending through the airy structure to smaller areas of solitude and tranquility.



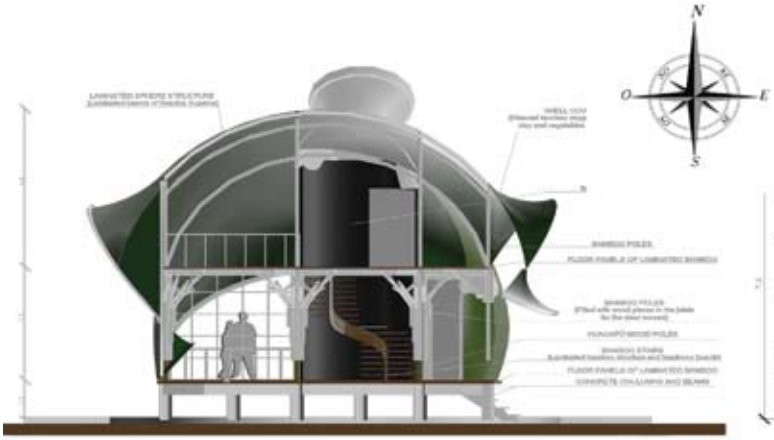
Gabriel Gallager & Andrew Van Leeuwen *Family Home for US Midwest* USA

Gabriel Gallager & Andrew Van Leeuwen *Family Home for US Midwest* USA



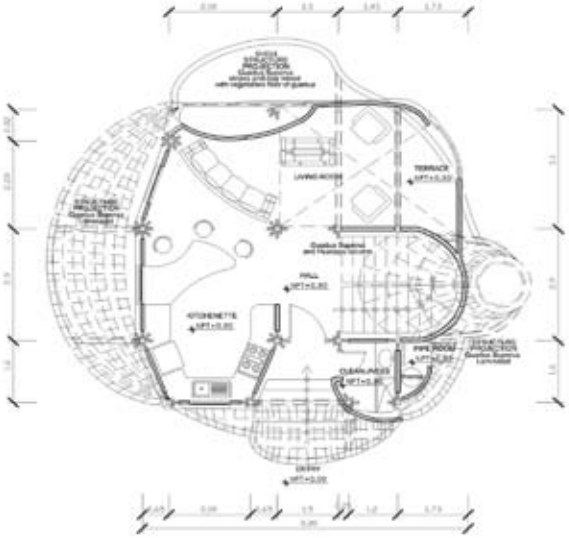


V.P.H. Dulanto & M.G.T. Yupanqui *Shell Bungalow for the Amazon* Peru



A-A Section

Second floor

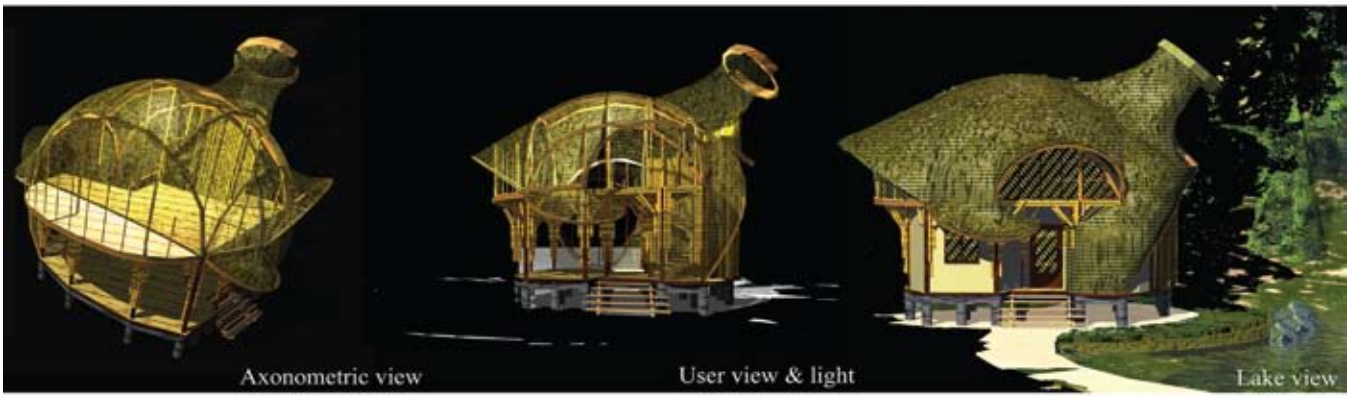


First floor

ESCALE 0 1 2 3 4 5 Meters

The Shell Boungallow has been designed to host a couple, and can be adapted to host a small family of four members in a comfortable and warm atmosphere; exploring the sensations produced by the light and the views.
The distribution is organized around the central hall. The first floor is the social-star area, with a kitchenette, a star, a terrace and a cleanliness room; upstairs there is a double bathroom and the bedroom.

The constructive module is based in orthogonal light structures made with a mixed system. The Bamboo poles (sometimes filled with Huacapu wood pieces, a very hard wood of the Amazon) are attached to four main Huacapu columns that receive the weight of the second floor; these woods are connected to four steel pieces over steers of concrete; the first floor rest over concrete beams; while the roof shell made with Bamboo weaved stripes and light plaster, rests over a spherical structure of laminated Bamboo (Guadua Superva).



V.P.H. Dulanto & M.G.T. Yupanqui *Shell Bungalow for the Amazon* Peru

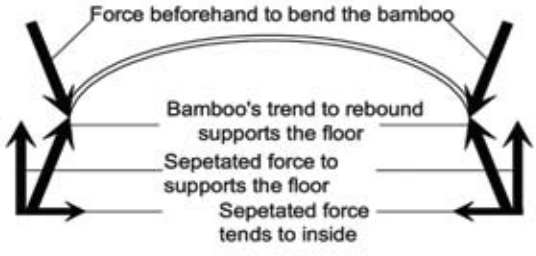
The Anji Town in Zhejiang(China) has a large amount of Mao bamboos, so the government hopes to attract local residents and people outside to build bamboo houses here, while investigating tourists' houses to promote tourism and economy

According to these, we propose a new concept for local bamboo house: prefabricated、composed、renewable and recycle(pcrr). The bamboo building consists of three independent-structure blocks: two one-floor blocks and one two-floor block. We design a adaptable steel structure as the basic connecting component, which can adjust the directions of the connected components and can used for different diameters of bamboos, therefore connect all the components. The masters can pick the blocks based on own needs and financial abilities, and the place here will grow to be a varied and interested bamboo building community made up with flexible、economical and easy-constructed composed houses.

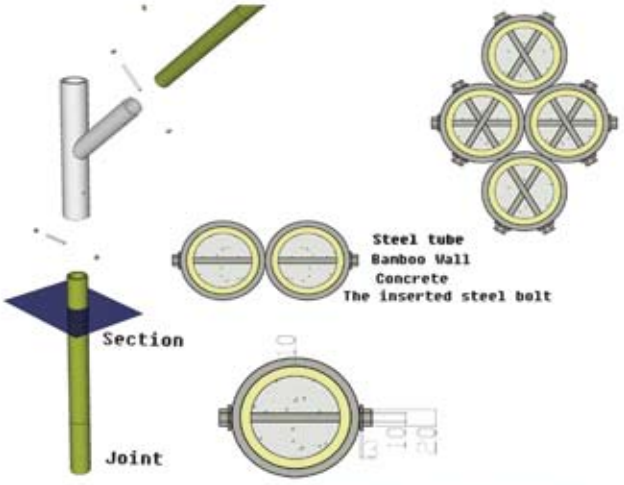
What's more, we learn from the quintessence of the traditional local houses, combine them with the characters of bamboo architecture and modern life's needs, and improve while utilizing them, such as improve the old function display, change the traditional form into modern style, and use the local materials.

This place will become a comprehensive nature region with people here and from outside and many tourists who really enjoy the beautiful scenery and comfortabl、regional houses here. Bamboo, as the special products here, will be brought into play to the utmost and seen as the symbol of the natural and energetic town.

Chen Feng, Howie Gu & Joy Chen *Bamboo House for Anji* China

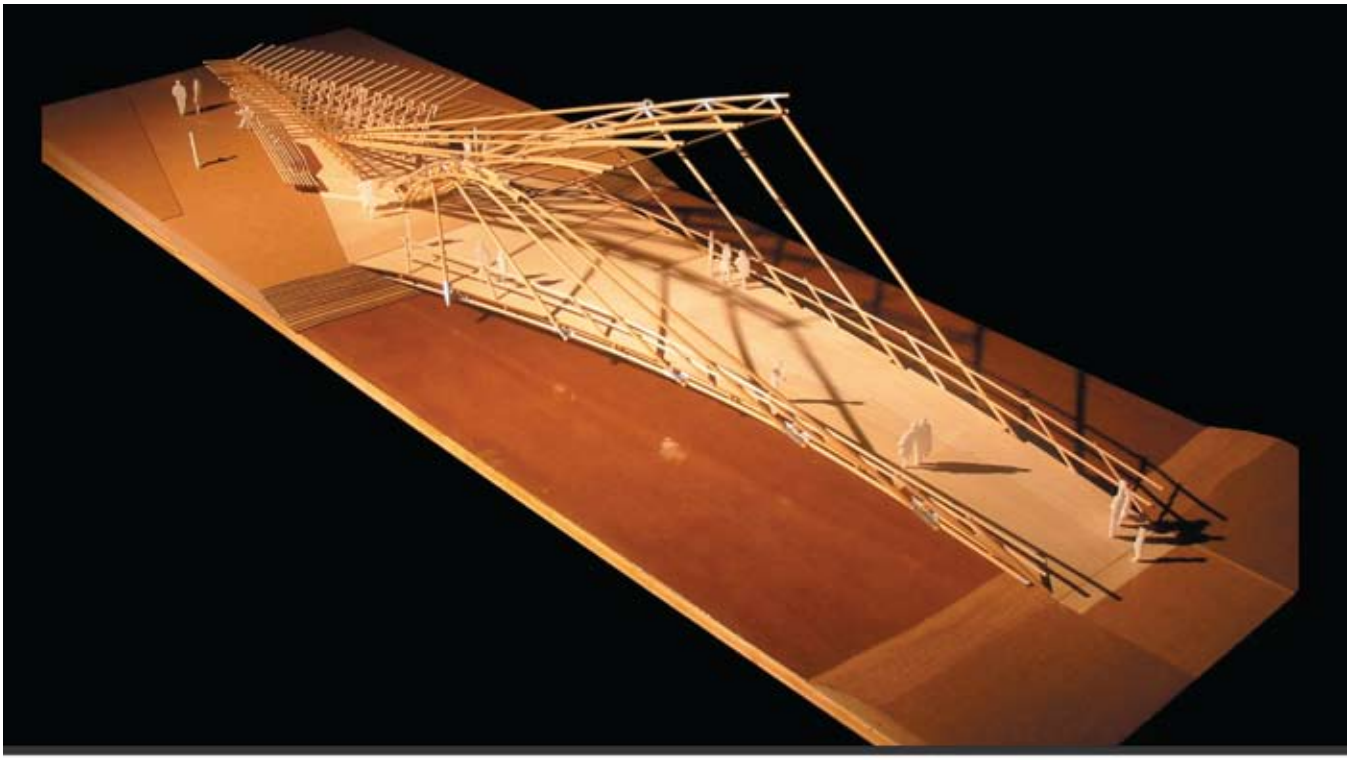


FORCE OF BENDED BAMBOO 1/50



CONNECTING CONSTRUCTIONS

Chen Feng, Howie Gu & Joy Chen *Bamboo House for Anji* China



STRUCTURAL BAMBOO BRIDGE

St. James Park, London

The proposed bridge manifests qualities indicative of bamboo as a material and a plant. As the bridge ascends rapidly from its dense structural roots in the ground, it flows outward, reminiscent of a large growth of bamboo. Clearing a span of 30 meters, this pedestrian bridge is suspended by bamboo trusses creating a dynamic structural system and an organic composition.

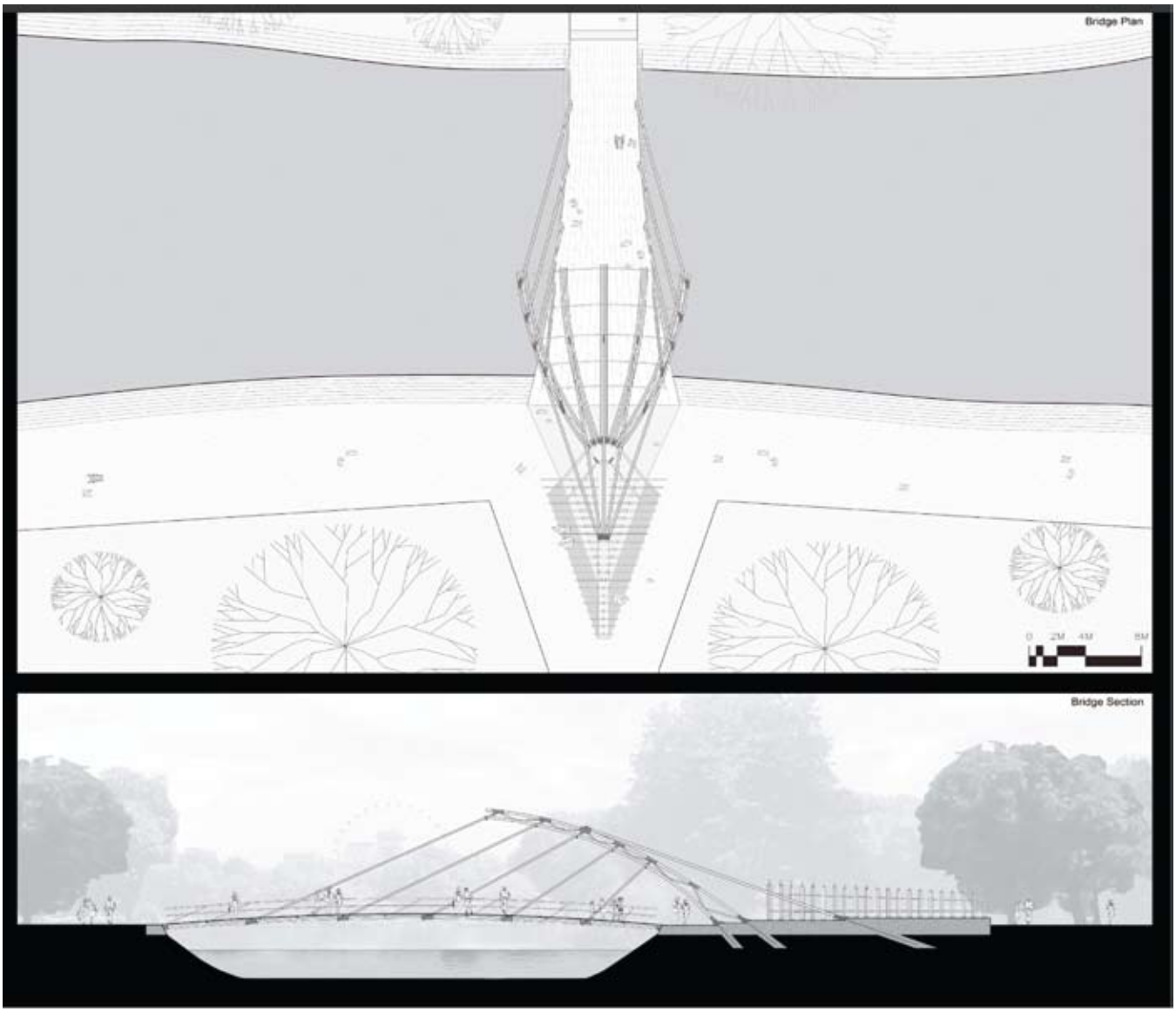
Located in London's St. James Park, the bridge creates a dialogue with existing park structures and becomes a crossroad for visitors. At the base of the bridge's structure are park benches allowing for a more static experience with the bridge. The decking, seating, and structure are comprised completely of bamboo. Critical joints are held together with steel spacers, steel collars, mortar, and concrete.

Composed of large curving bamboo trusses, tensile, and lateral supports, the bridge becomes provocative architecturally and structurally. The bridge makes a clear positive statement about the beauty and structural capabilities of bamboo. In effect, it encompasses and displays many of the qualities that bamboo has to offer to architecture.

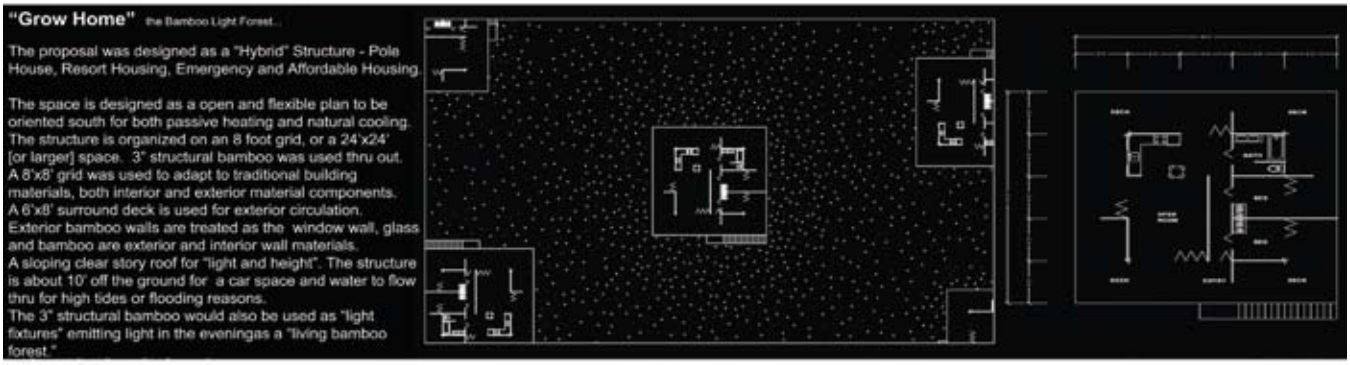
Michael J. Cady

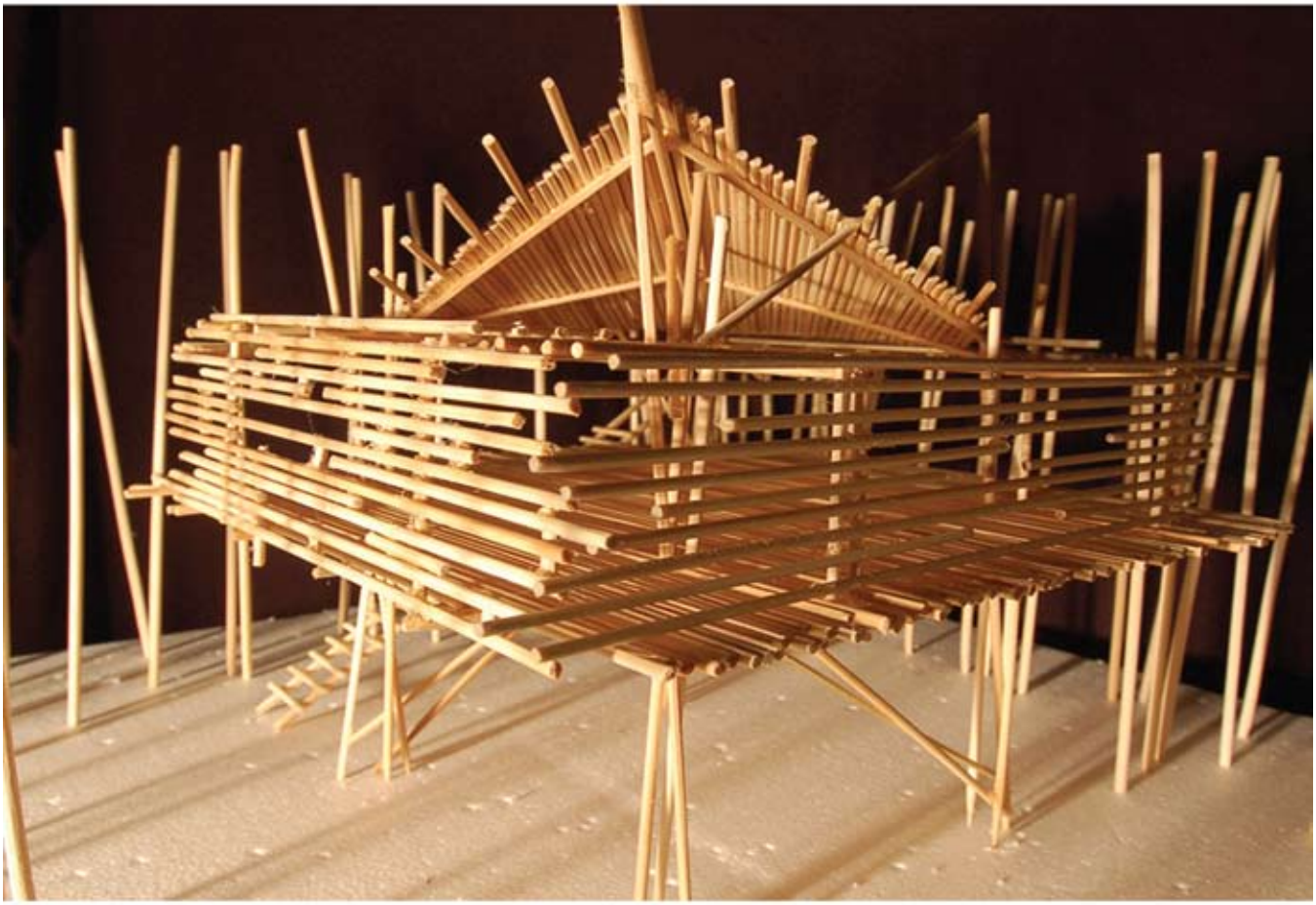
Bamboo Bridge for London

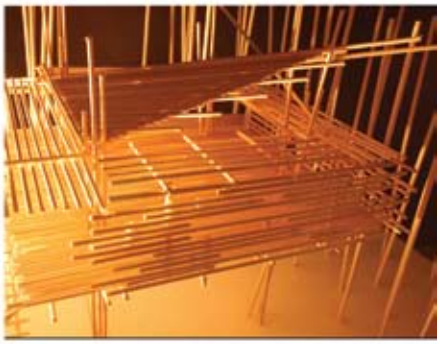
USA



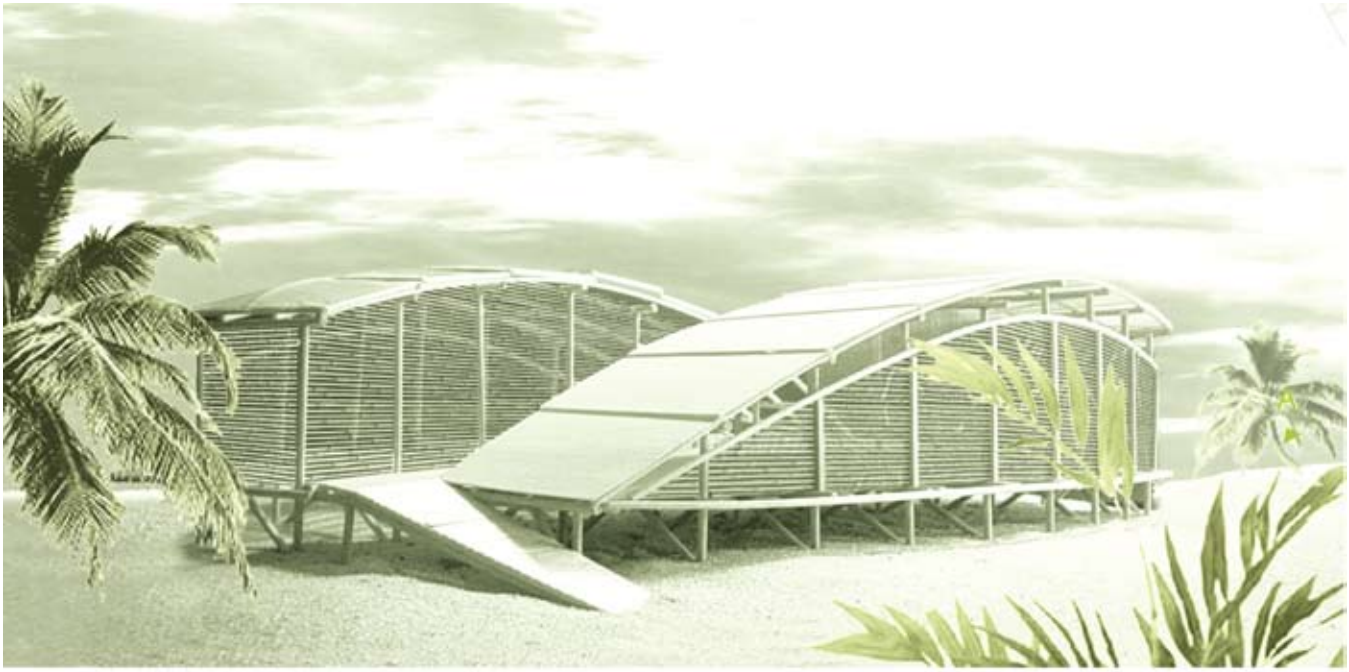
Michael J. Cady *Bamboo Bridge for London* USA

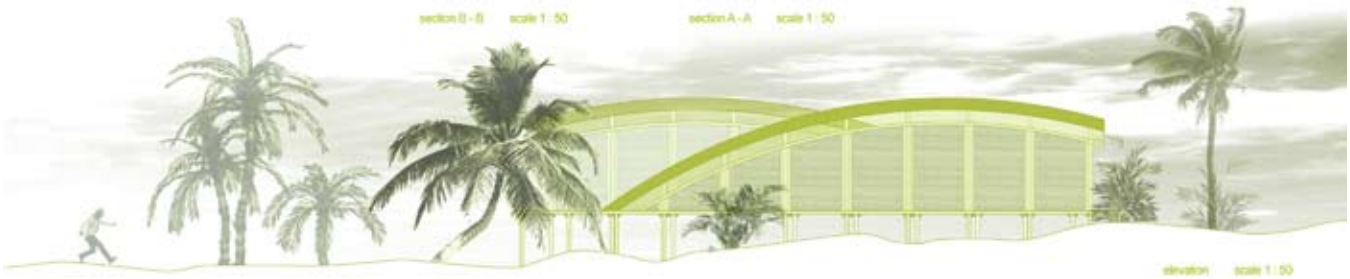






Steven Lombardi *Grow Home* USA

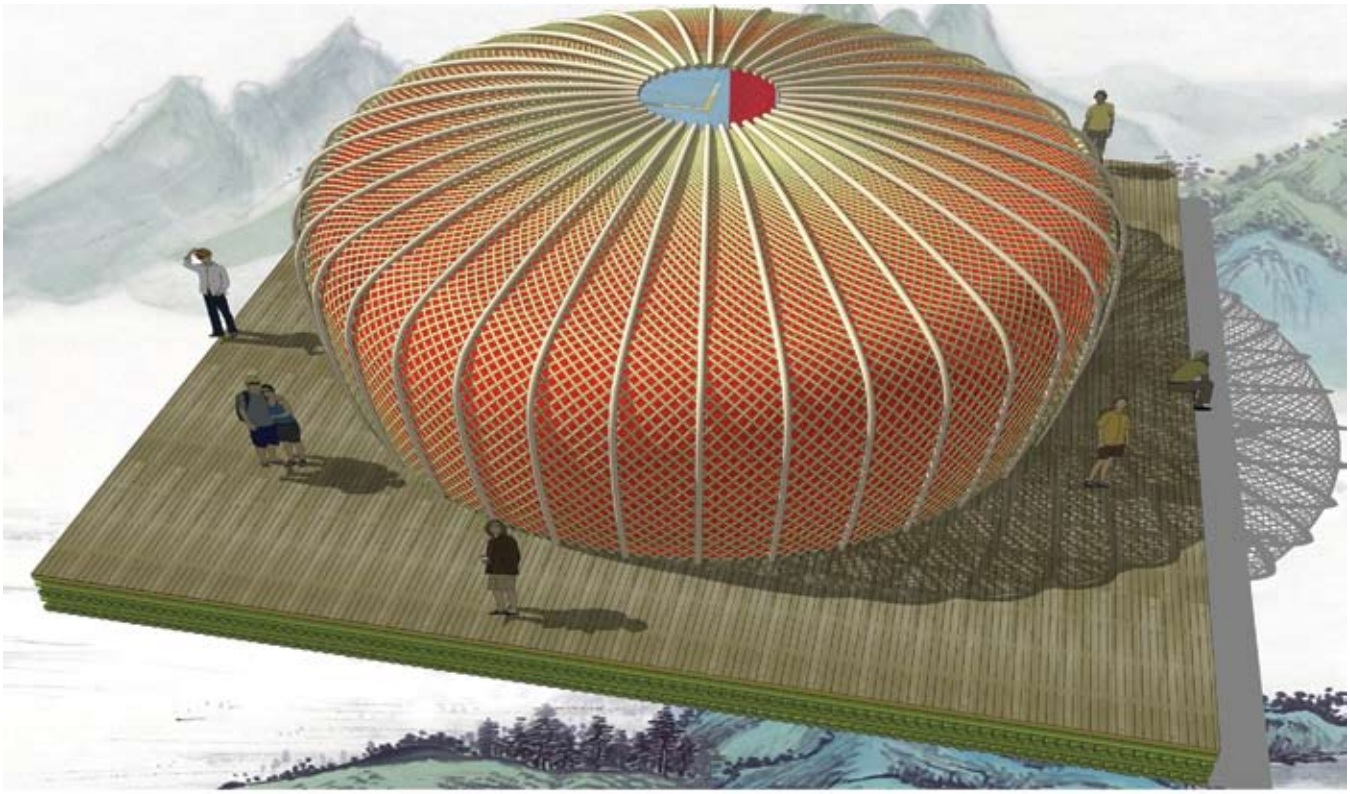




THE LEAF HOUSE

BAMBOO LIVING HOME

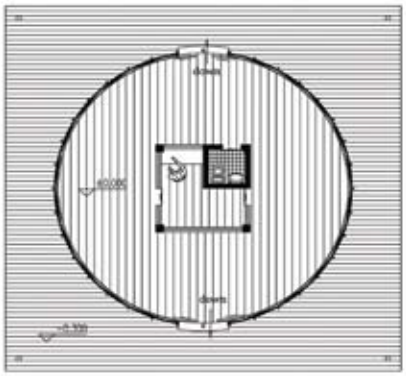
Daniel Meister — *The Leaf House for Brazil* — Germany



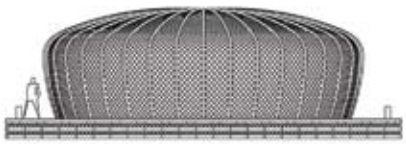
1.Bamboo , a kind of special material , is a symbol of certain culture and spirit.So it can represent further meaning in application to creating and making space.

2.The design relies on bamboo's two physical characteristics, refers to Chinese conventional images-bamboo raft and lantern and borrows the spirit of Zen to bring forward the concept-bamboo house above water

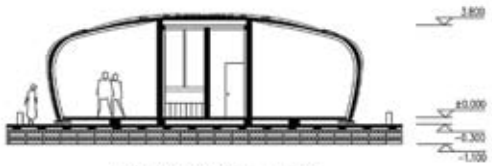
3.The way the design regards the closed space PartA as its main body, PartB and PartC as accessorial establishment which can be copied and put together at random bases on these three parts of different space qualities, and also attempts to construct business charter space with ever-changeable form and foundation for resting, recreation and dwelling. What's more, the design provides people with a new kind of activity form.



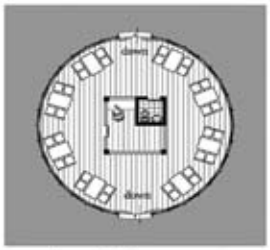
PartA Plan 1:100



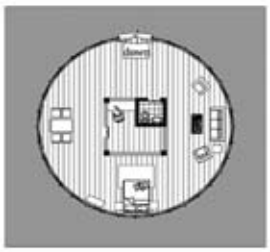
PartA Elevation 1:100



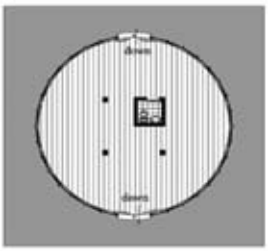
PartA Section 1:100



Type 1 .Teahouse 1:150



Type 2 .Inn above water 1:150

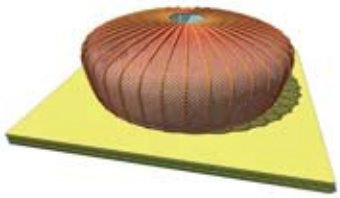


Type 3 .For gathering, exhibition hall 1:150

Yin Song Nan

Bamboo House Above Water

China

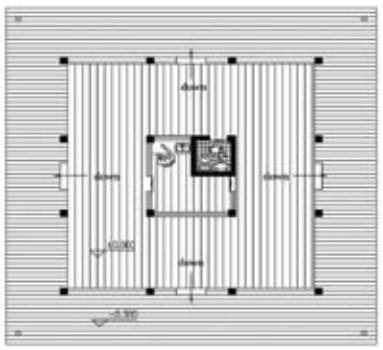


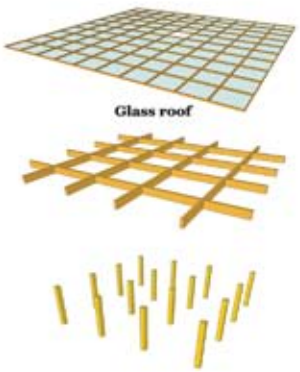
Pleach broad bamboo strip

Bamboo skeleton by benting and lanci

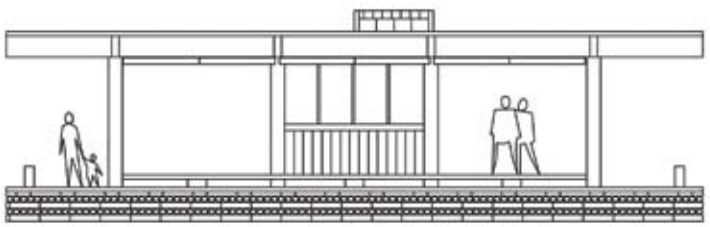
Half transparent mambrane

Wood board

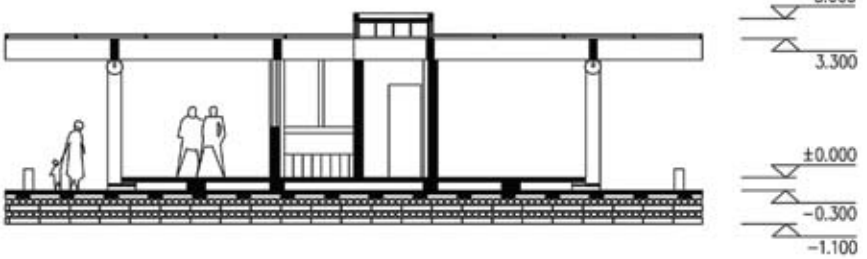




Glass roof



PartB Elevation 1:100



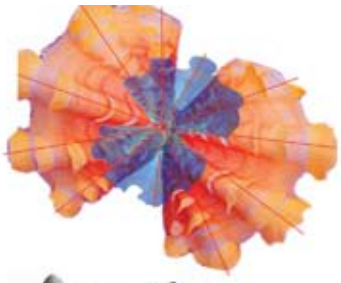
PartB Section 1:100

Yin Song Nan *Bamboo House Above Water* China

CONCEPT...

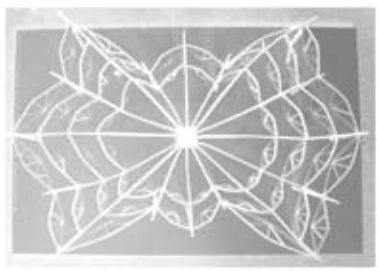
clam shell roof structure

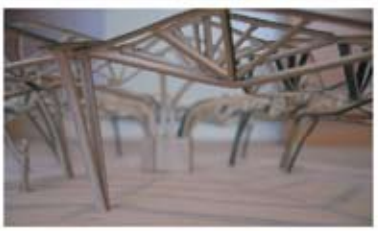
I wanted to create a light, elegant structure that used a traditional material in a clearly modern way. The concept for my pavilion structure is based on the metaphor of a shell, or more specifically a set of giant clams. This represents the importance of the sea in respect to the Pacific Islanders culture and history. The design represents interplaying relationships between light, space, material, form and structure. The form of the pavilion is derived from a natural reference (a set of clams) this provides a clear scale, shape and dynamism to the design.

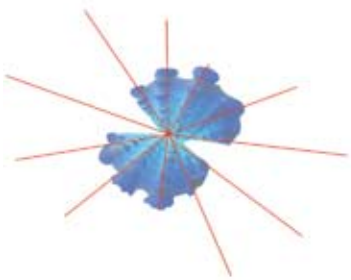


This structure makes use of both the natural compression & tension characteristics of bamboo, to explore the potential of this versatile material. The modern identity of the structure is provided by the steel connection details as well as the overall dynamic form.

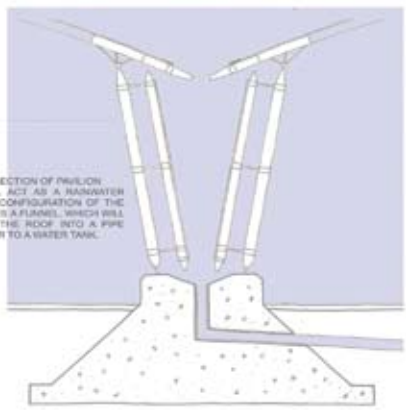
The structure I have designed could be used as the islands community meeting space and would be a good place to hold the daily fish market and other activities such as community meetings & festivals.



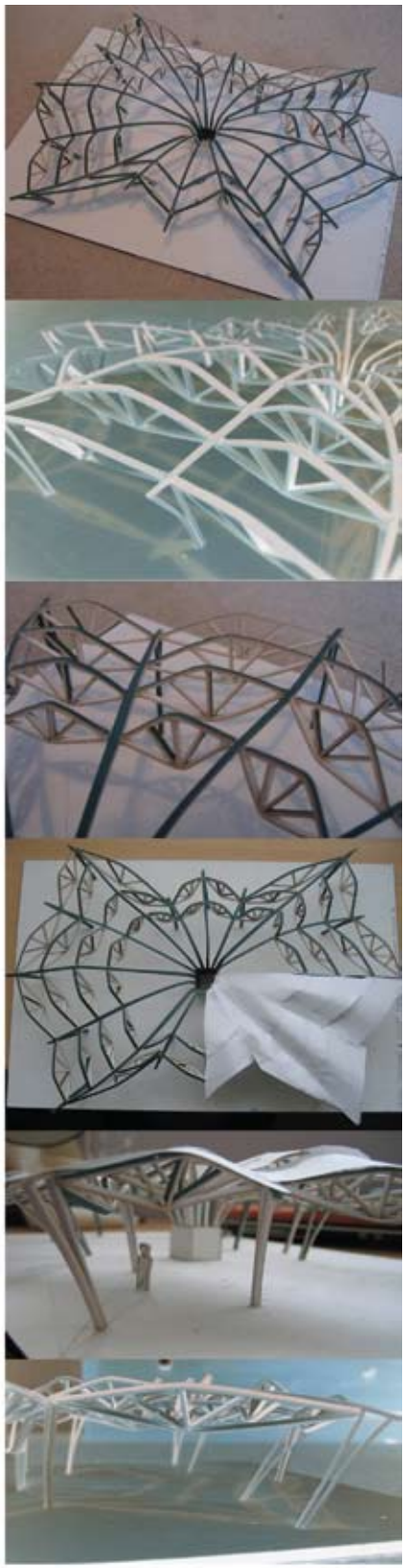




SKETCH DETAIL OF MIDDLE SECTION OF PAVILION. THE MIDDLE SECTION WILL ACT AS A RAINWATER HARVESTING SYSTEM. THE CONFIGURATION OF THE BAMBOO SUPPORTS CREATES A FUNNEL, WHICH WILL DIRECT RAINWATER FROM THE ROOF INTO A PIPE THAT WILL CARRY THE WATER TO A WATER TANK.

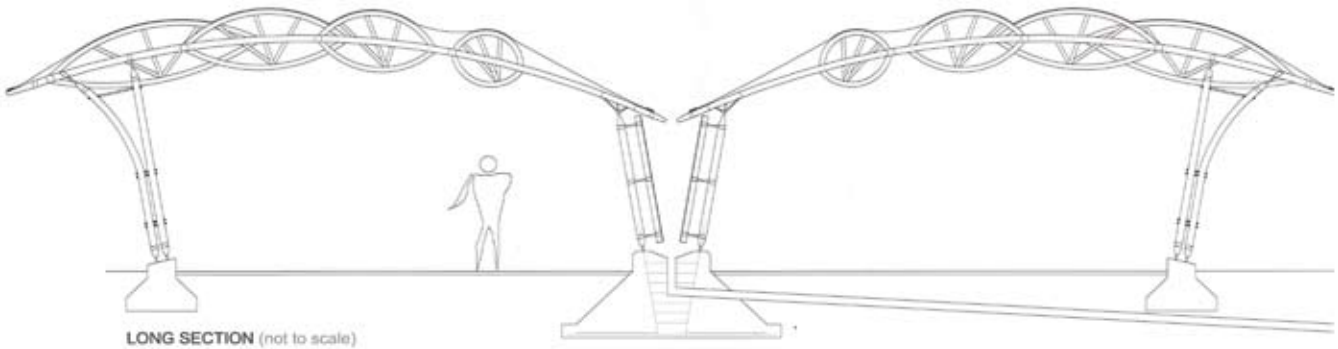


THE ENTIRE STRUCTURE UTILISES A COMBINATION OF MATERIALS, PREDOMINATELY BAMBOO WITH STAINLESS STEEL CONNECTION DETAILS AND CONCRETE FOUNDATIONS. THE ROOF SKIN WILL BE AN IMPERMEABLE CLOTH MATERIAL SUCH AS SAIL CLOTH, THIS WILL ALLOW TRANSLUCENT LIGHT THROUGH THE STRUCTURE, CREATING A SHADOW PATTERN OF THE RAFTERS ON THE FLOOR.



Barney Paul Bonner — *Clam Shell Roof Structure* — United Kingdom

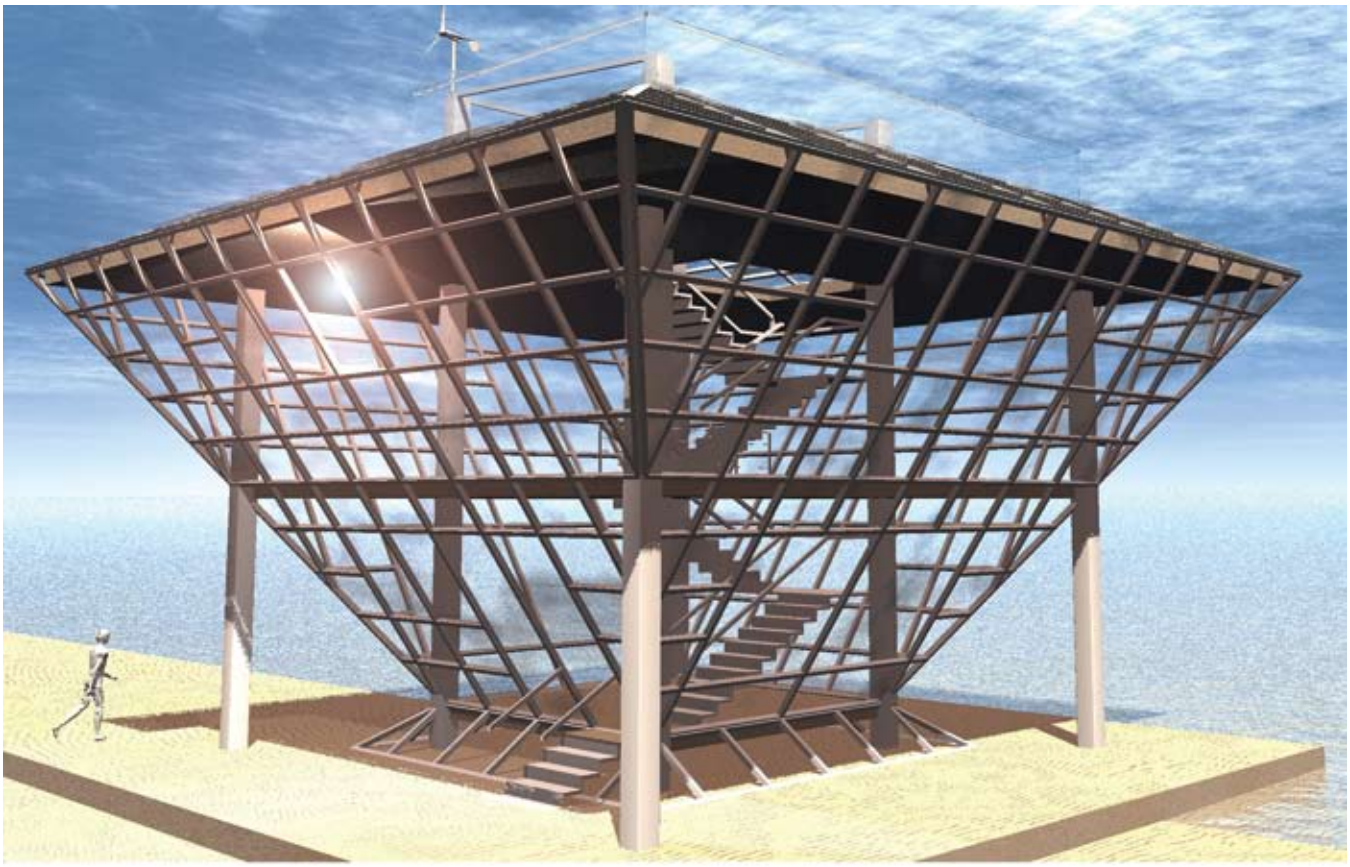
PLAN OF ROOF RAFTERS
(not to scale)



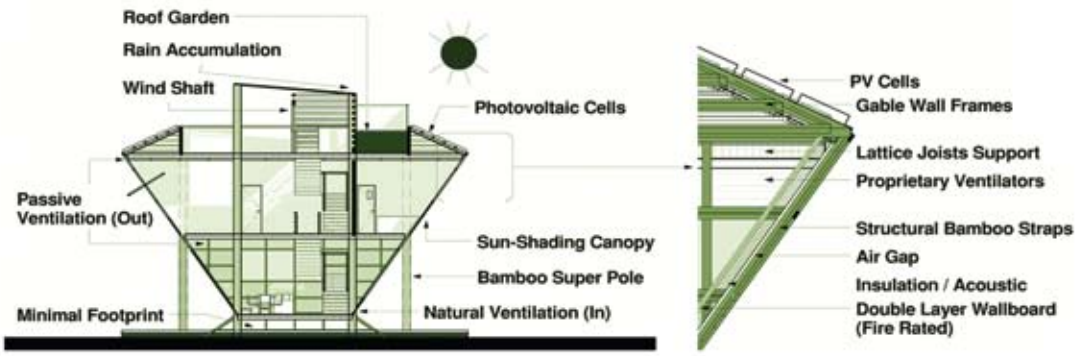
LONG SECTION (not to scale)

SKETCH ELEVATION OF PAVILION

Barney Paul Bonner *Clam Shell Roof Structure* United Kingdom



Although Bamboo is usually associated with traditional building style the Bamboo Diamond prototype is a modern interpretation combining the traditional benefits of this ecological material together with the sustainable needs of today.



Joseph Cory *Bamboo Diamonds Resort* Israel

Joseph Cory *Bamboo Diamonds Resort* Israel

CONCEPT AND DESCRIPTION

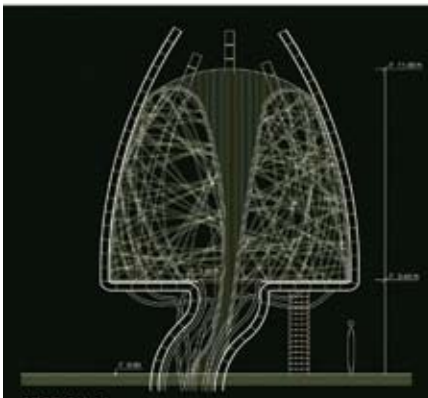
The human dominative and critical behavior above the natural environment has been always an accepted normal phenomenon of the "civilized world". Pragmatically, throughout history and under the pretext of "intelligent and advanced genera", the human race has always taken life of other life forms in order to create conveniences and to enhance his surroundings. Regardless of whether humans are supposed to be an integrated fraction of nature or advanced entities detached from it, the individual "awareness" and "intellect" provides him with the ability to alter his environs to fit his personal needs, desires and caprices.

Generally, architects execute projects for the merely humans' comfort and self satisfaction. However this project will try, from a fresh perspective, to reassess this behavior in order to reconnect humans with the natural world. Materials such as bamboo can play a vital role in achieving such aspiration as bamboo is unilaterally a fast growing and a convenient strong natural building material that can reflect well this philosophy of coexistence.

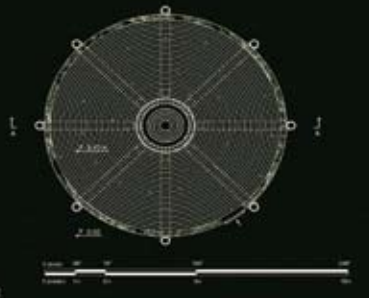
The Chinese *Penjing* and the Japanese *Bonsai* are the art of aesthetic miniaturization of trees and plants in containers. The trees are kept undersized and alive through a combination of delicate pot confinement, crown and root pruning. Copper or aluminum wires are used to shape branches; most trees are shaped by wires that are wrapped around branches and trunks, in order to hold the branch in specific place until it eventually takes the desired direction. The traditional ways of the East of shape-shifting nature, while keeping it alive, is world-wide reputable. Therefore vital methodology and techniques can be observed and learned for the purpose to generate such real size scale living structure that will be referred in this project by A Living Hut.

The conventional procedure using bamboo as a building material can be observed through growing, cutting and then afterward collecting and drying bamboo in order to become set for construction. However the execution of this project will attempt to try and guide bamboos in their natural development and growth, while keeping them alive, for the purpose of building a living structure. The entire construction period will follow the temporal growth of the bamboo and since bamboos usually grow in a unilateral direction, it would not be unfunded to guide their growth. Hence wires, angled aluminum caps and light can play a crucial role in compelling the bamboo to follow the desired path. Naturally wires or caps, similar to the technique used in *penjing* or *bonsai*, are only left on as long as it takes for the bamboo to be set in the desired stance.

Although the aspect of domination and control over nature is present in this concept a significant difference persists in the idea of allowing the Bamboo material to stay alive following the construction. This project is a statement and an attempt to demonstrate a peaceful approach and symbiotic coexistence between humans and nature.



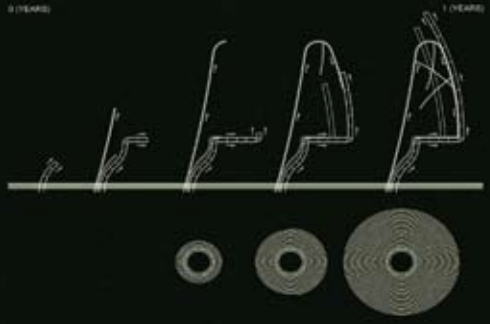
SECTION AA



PLAN

STRUCTURAL ELEMENTS

TEMPORAL STAGES OF DEVELOPMENT AND GROWTH

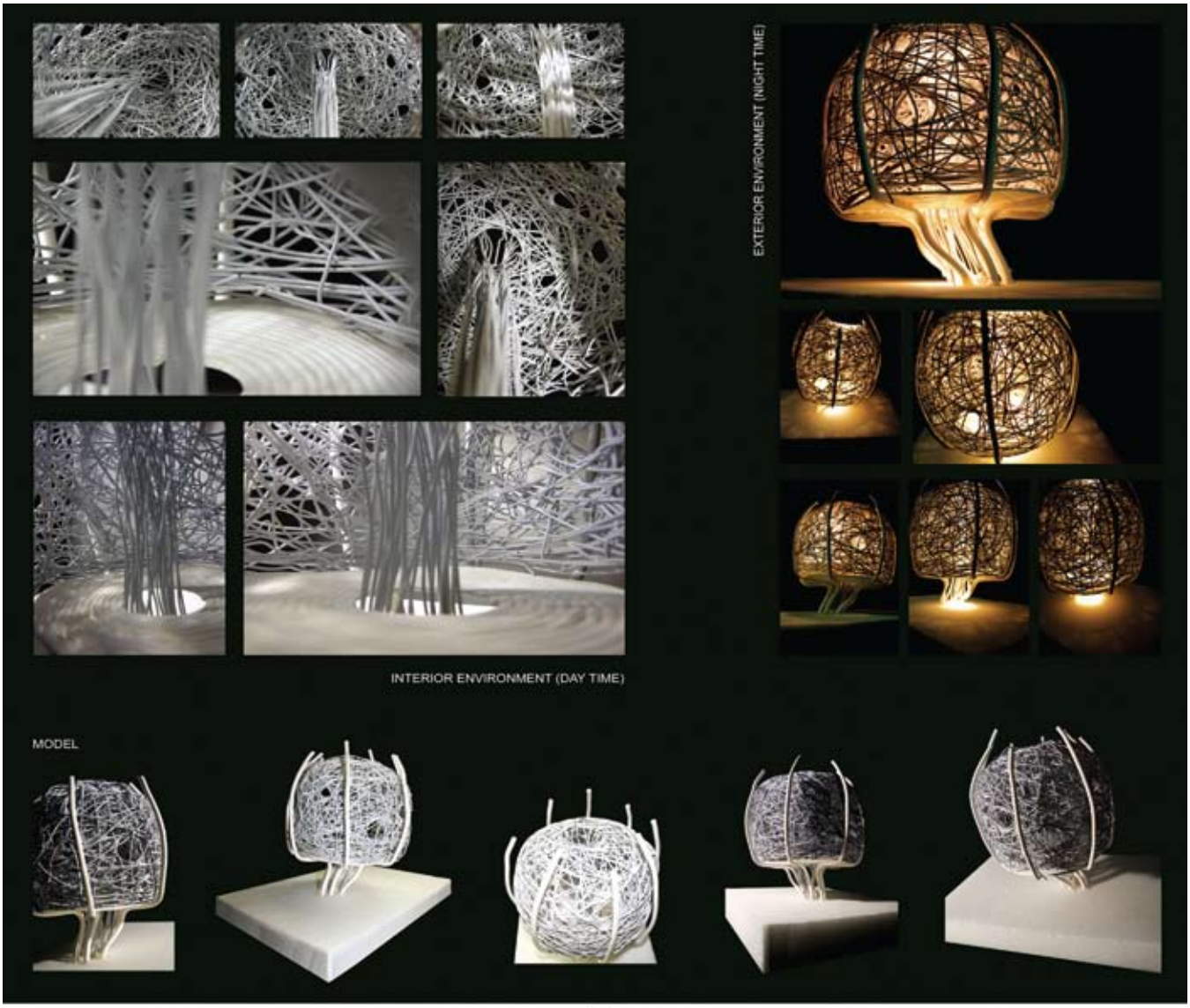


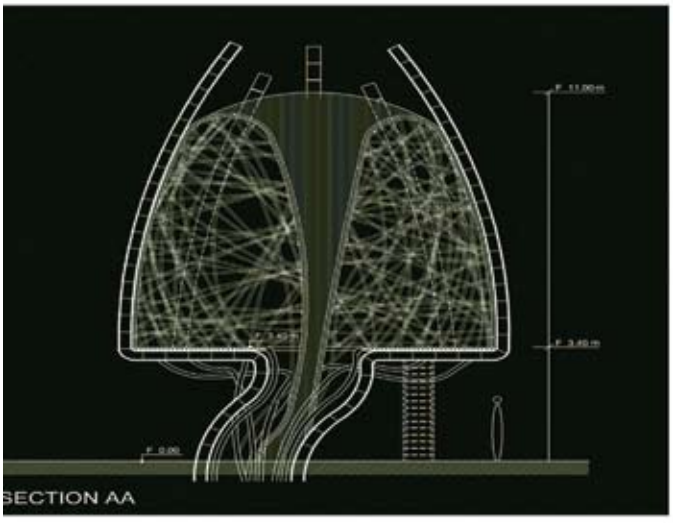
TECHNIQUE AND PROCEDURE

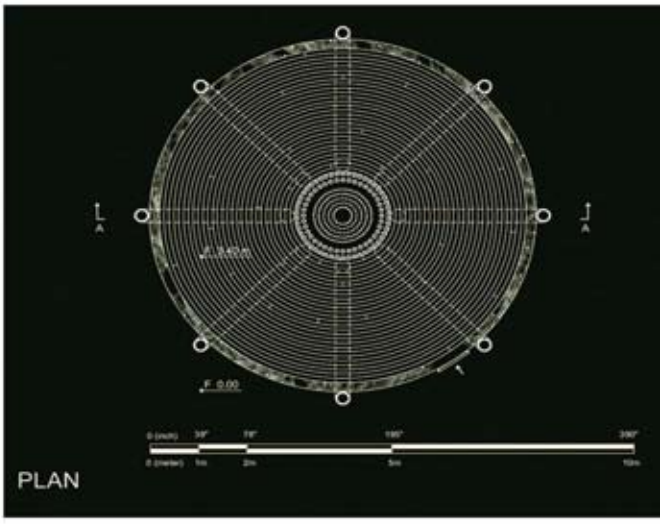
The project, as an experiment, consists of a single platform levitated three and a half meters from the soil. Its structure is constituted of three kinds of bamboo creating three kinds of structural elements:

- The primary structure, constructed by the widest diameter of bamboos (~30 cm), will comprise the main pillars of the project.
- The secondary structure, constructed by bamboos of a medium diameter (~10 cm), will constitute the levitated platform.
- The tertiary structure, constructed by the smallest diameters of bamboos (~5cm), will cover the membrane that encloses the occupied space.

Georges Kachaamy & Kentaro Honma — *A Living Hut* — Japan







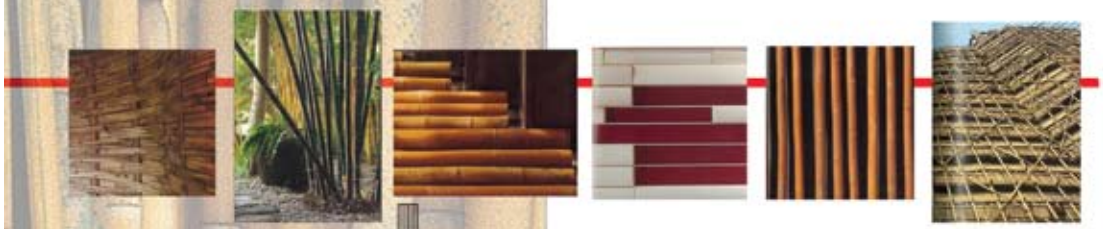
Georges Kachaamy & Kentaro Honma *A Living Hut* Japan

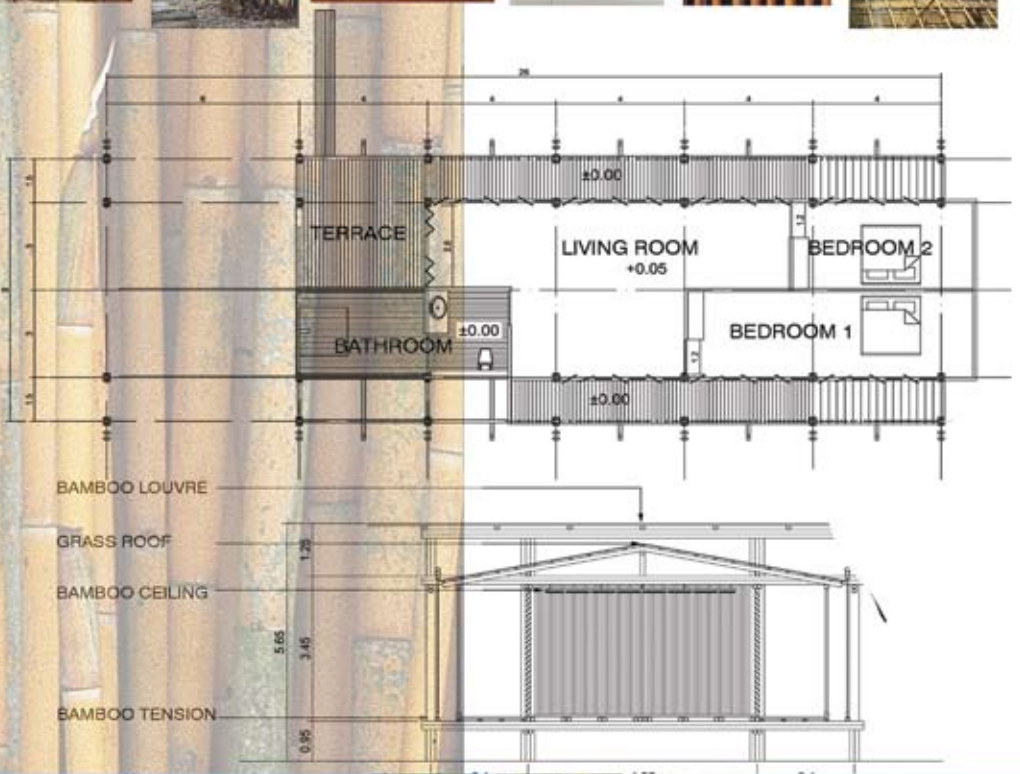
RHYTHMIC LIVING

TENSILE HOUSE, THAILAND

บ้านดึงดัน, ประเทศไทย

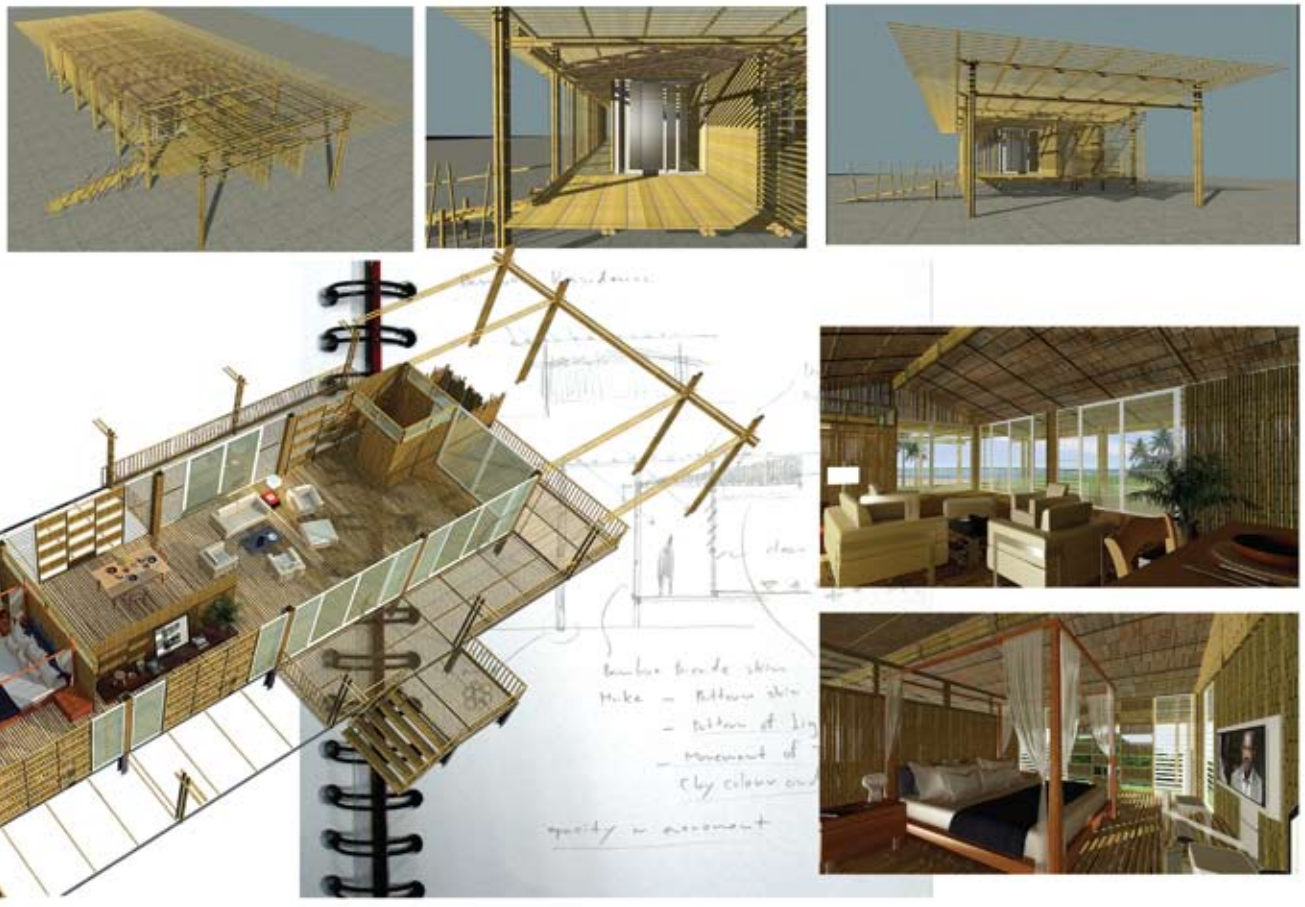
THE BAMBOO FACADE ACTS AS A THERMO SKIN. THESE BAMBOO PANELS CREATE A MOVING ENVIRONMENT WHILE LIGHT PATTERNS CRETATED BY THE WALL PANELS SHOW TIME PASSING THROUGH LIFE. THE DOUBLE ROOF LAYERS PROTECT TENANTS FROM THE TROPICAL CLIMATE THE CONCEPT DERIVES FROM THAI VERNACULAR ARCHITECTURE.





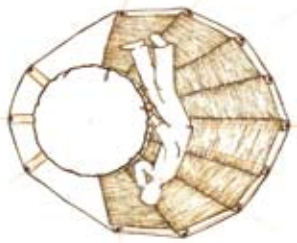
Natnapa Sae-Lim Patpiya *Rhythmic Living Tensile House* Thailand

DERIVES FROM TRADITIONAL THAI HOUSE



Natnapa Sae-Lim Patpiya *Rhythmic Living Tensile House* Thailand

Cross Section scale 1:20



Upper & Lower Floor Plan scale 1:20

REGISTER # 1301 Category: Tree houses & Pole Houses

"As we enter the tree it becomes infected. Like a virus we are; the tree despises us. We must work together to heal its wound."

a tree or a house?

As we join a house and a tree together we create a treehouse. But is it as simple as that?

Most treehouses are houses that are simply placed on trees. There happens to be no relationship between them.

The intention is for the two parts to harmonise and rely on each other to become a 'treehouse', a structure that utilises the potentials of a tree so that if the tree disappears then it is not possible to construct the house. **"No tree, No house"**

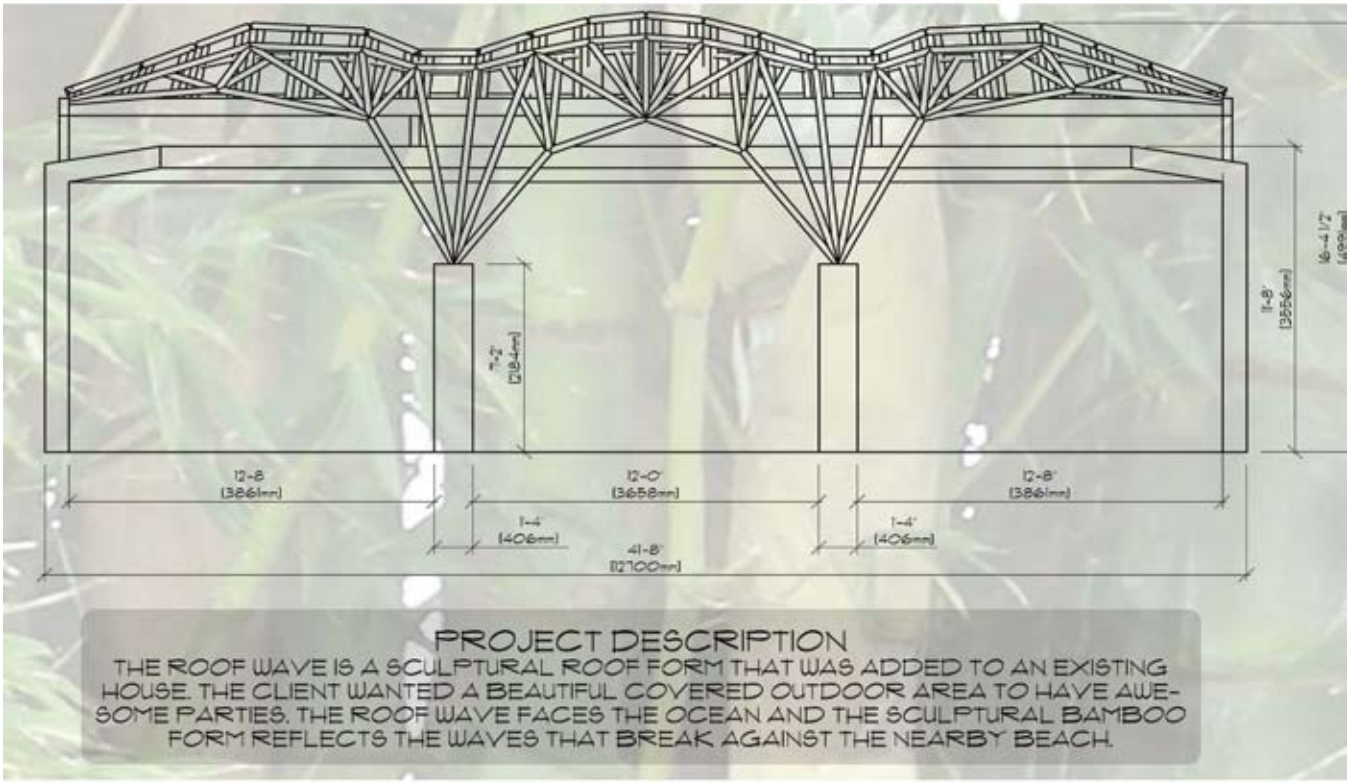
Dan William Armfield *Tree House* New Zealand

ECO-LODGE LUMAHAI: kauai, hawaii

ABSTRACT: Every year, millions of vacationers escape to Hawaii to be immersed in an island paradise. Yet when they reach their Pacific getaway, they are funneled into mediocre hospitality facilities that simulate an ideological perception of what a *Hawaiian* vacation should be. Most will spend their time on congested beaches, partaking in artificially contrived *Hawaiian* celebrations, enjoying synthetic *Hawaiian* landscapes and then leave, actually believing they experienced the real Hawaii. So where do people go to receive an authentic experience of what Hawaii is truly like?

OVERVIEW: Kauai, known as the *garden isle* and being 90% inaccessible by road, has become a hotspot for an aggressive adventure tourism market and is ideally located to promote a different kind of resort experience; an **[eco-lodge]**. The chosen site is located on 30 acres of beach, surf, forest and mountainous terrain on Kauai's north shore. The eco-lodge is broken up into individual living units, providing its guests with their own, tropical hideaways. These units have been designed using eco-sensitive materials and focus on utilizing the natural environment around them. The form is segmented and open, allowing cool, ocean breezes to pass through and light to flicker in as if breaking through a canopy of trees. The body is elevated, protecting itself from rogue waves and keeping its footprint lush with vegetation rather than bulldozed and removed. Energy is produces through solar panels, water is collected through rain harvesting, air conditioning is replaced with natural ventilation and the structure is built with bamboo. The unit is designed to exist in harmony with its surrounding environment by celebrating and preserving the natural vegetation and giving its guests what they want; a true Hawaiian experience in an authentic environment.

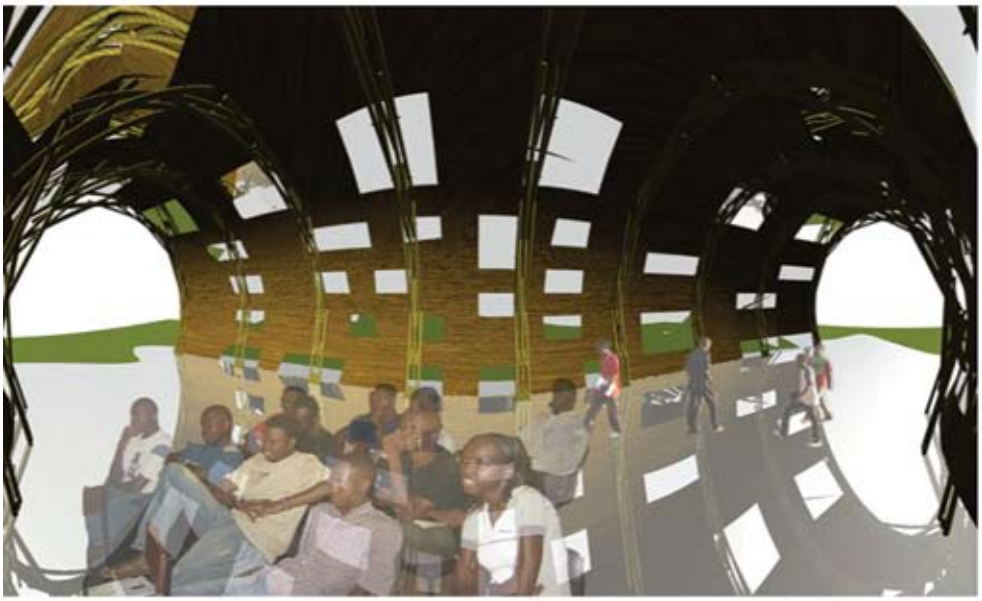
Dustin Lucas Wekesser *Eco-Lodge Lumahai in Kauai* USA



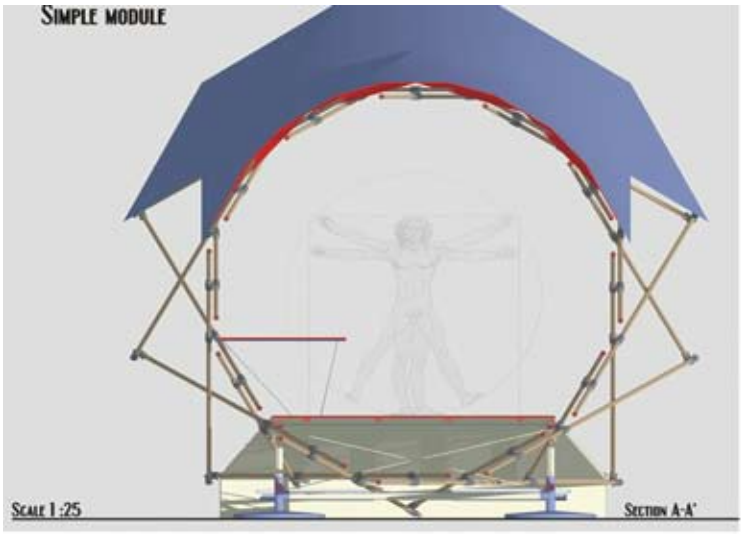
PROJECT DESCRIPTION

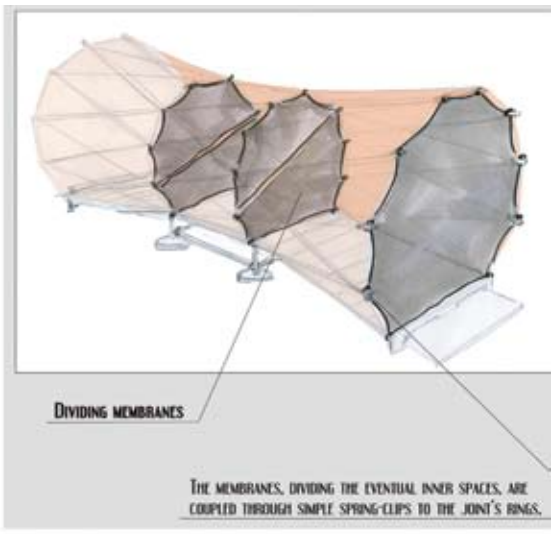
THE ROOF WAVE IS A SCULPTURAL ROOF FORM THAT WAS ADDED TO AN EXISTING HOUSE. THE CLIENT WANTED A BEAUTIFUL COVERED OUTDOOR AREA TO HAVE AWESOME PARTIES. THE ROOF WAVE FACES THE OCEAN AND THE SCULPTURAL BAMBOO FORM REFLECTS THE WAVES THAT BREAK AGAINST THE NEARBY BEACH.

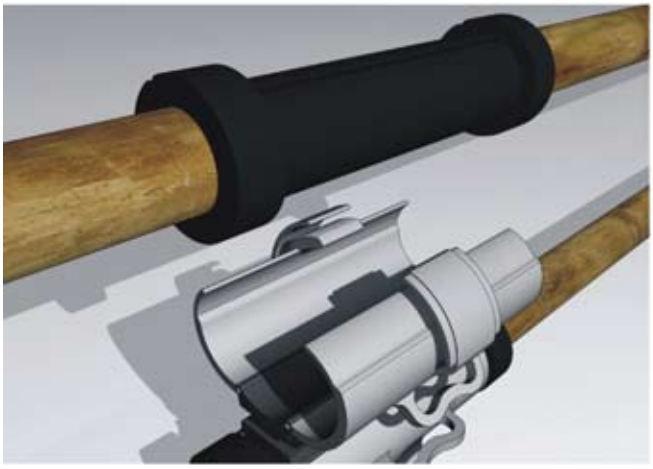
David Sands *Roof Wave in Maui Hawaii* USA

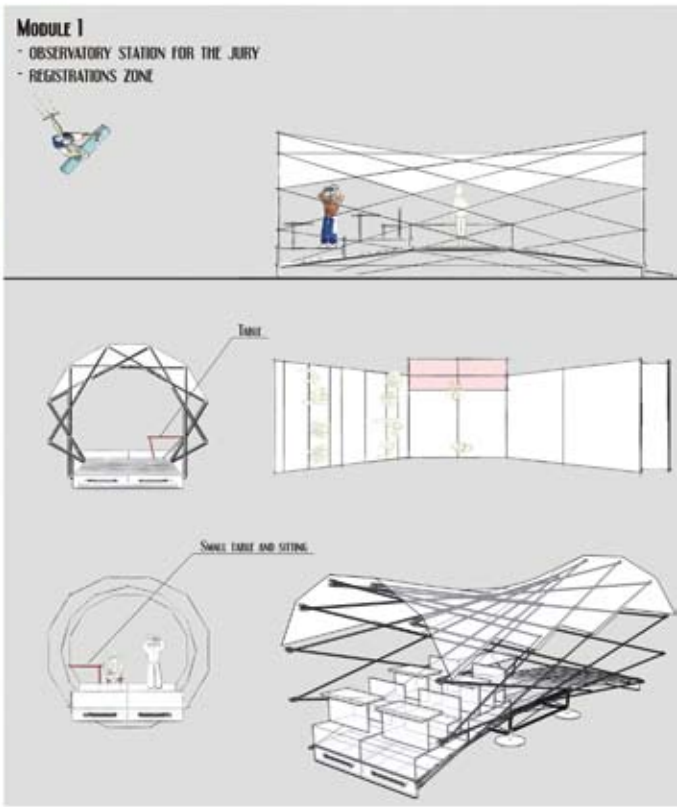


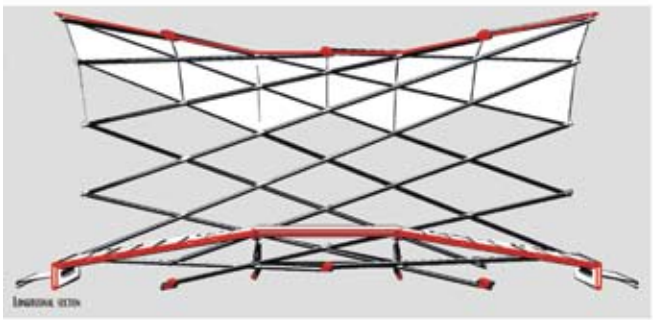
Andrew Amara — *Inside Yet Outside Pavilion* — Uganda

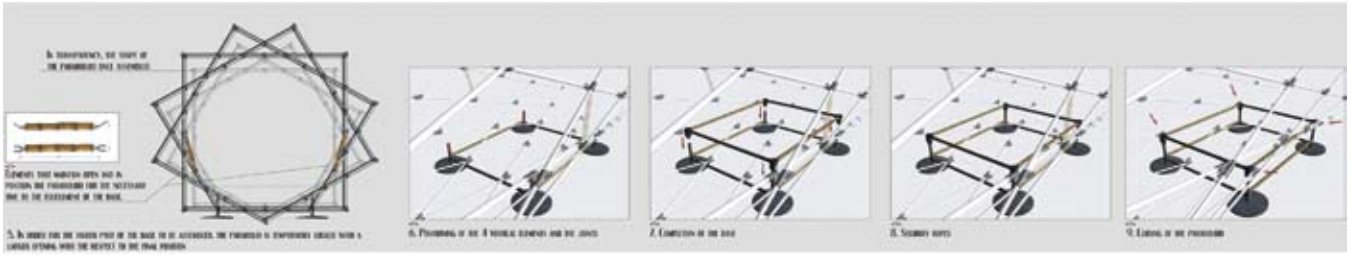




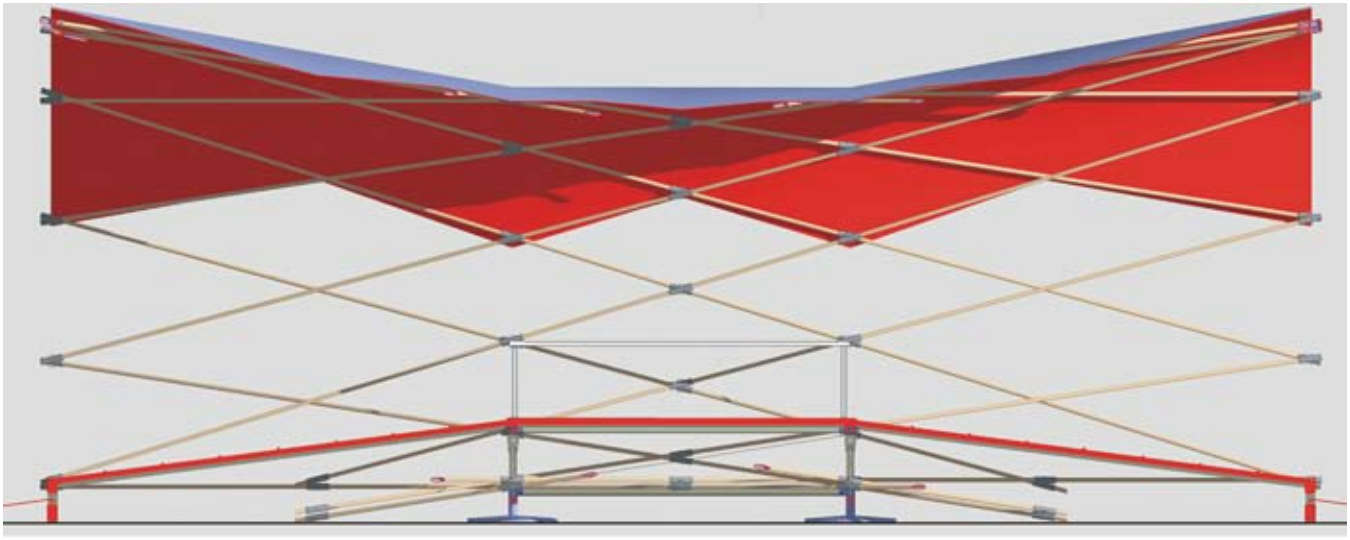


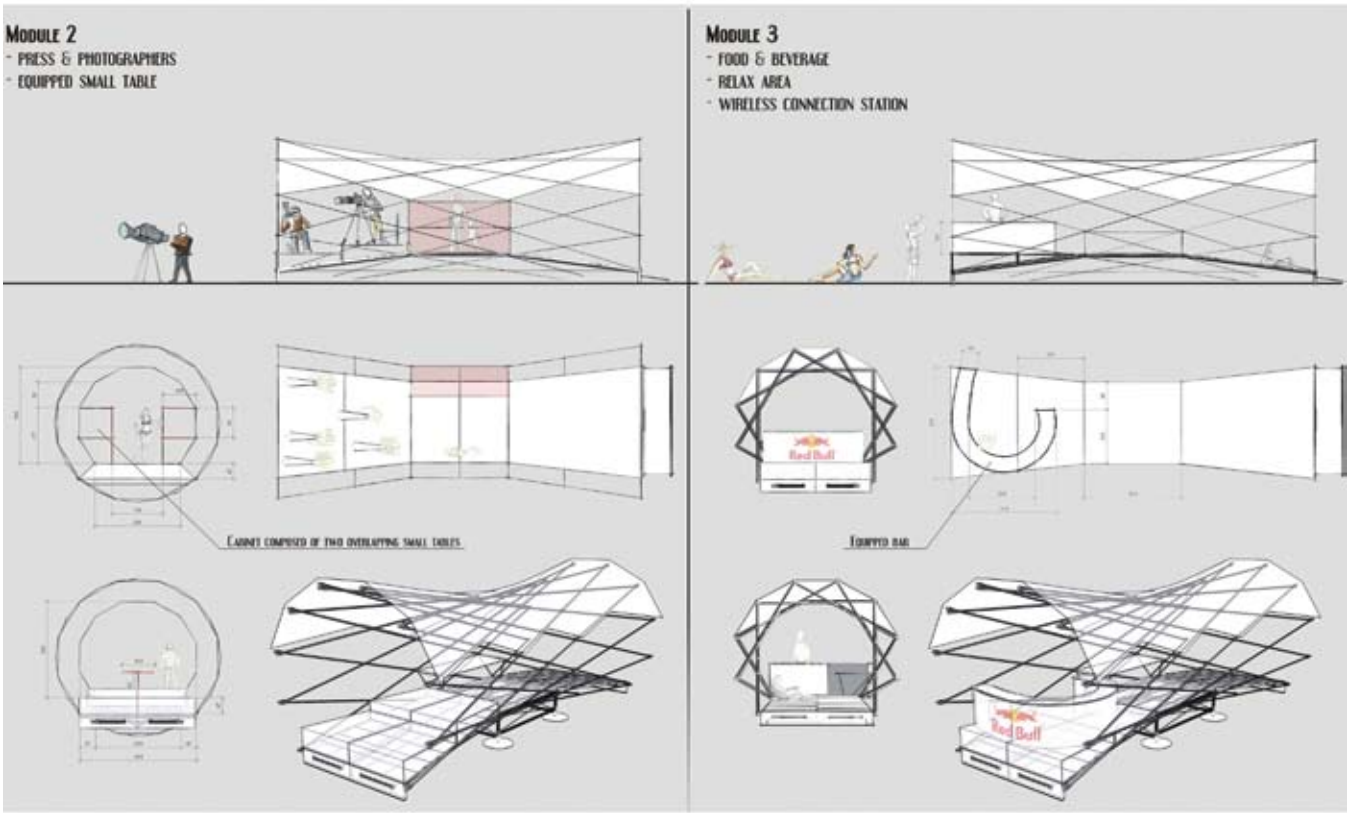




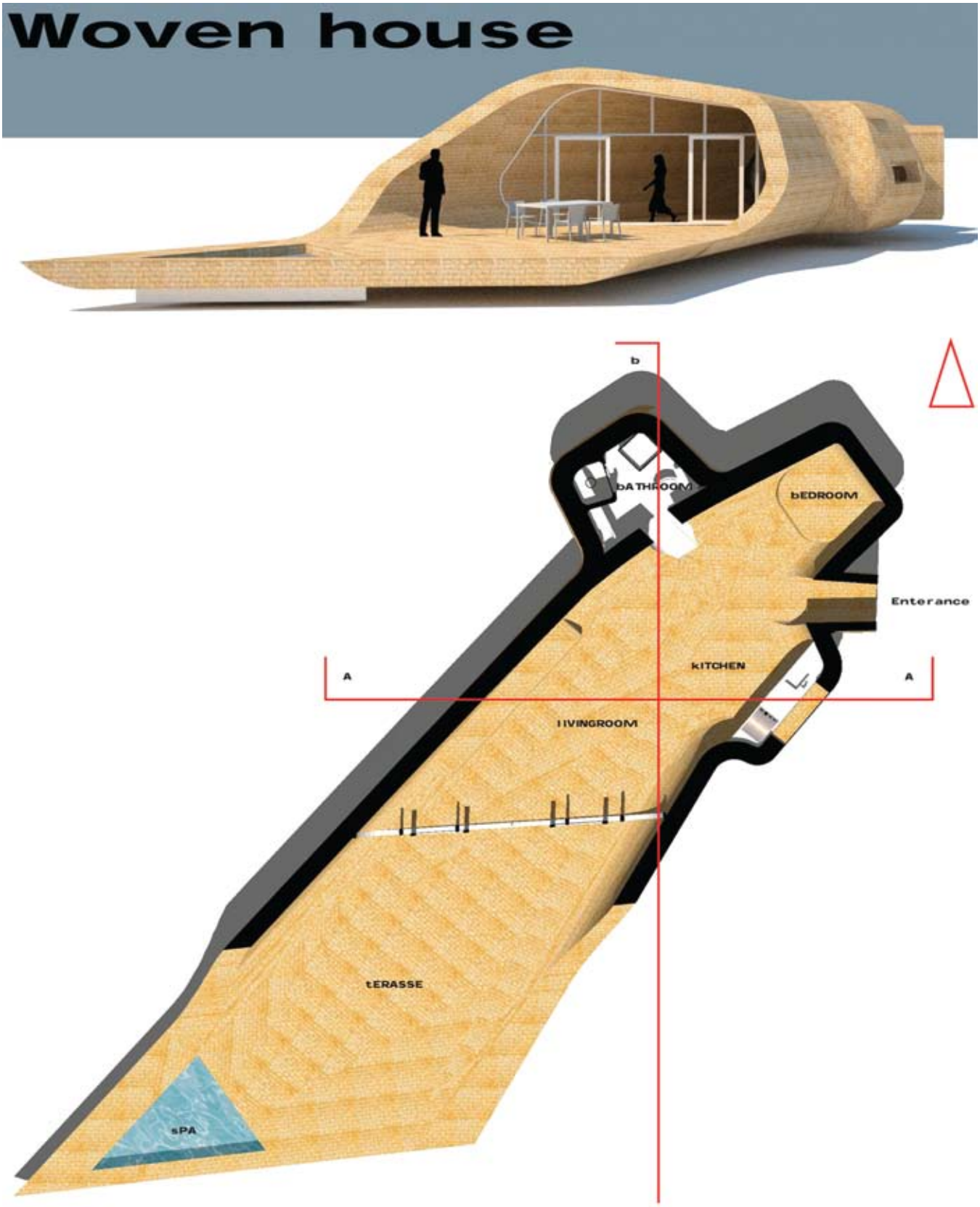


Giorgio Traverso *Evolution Portable Structure* Italy

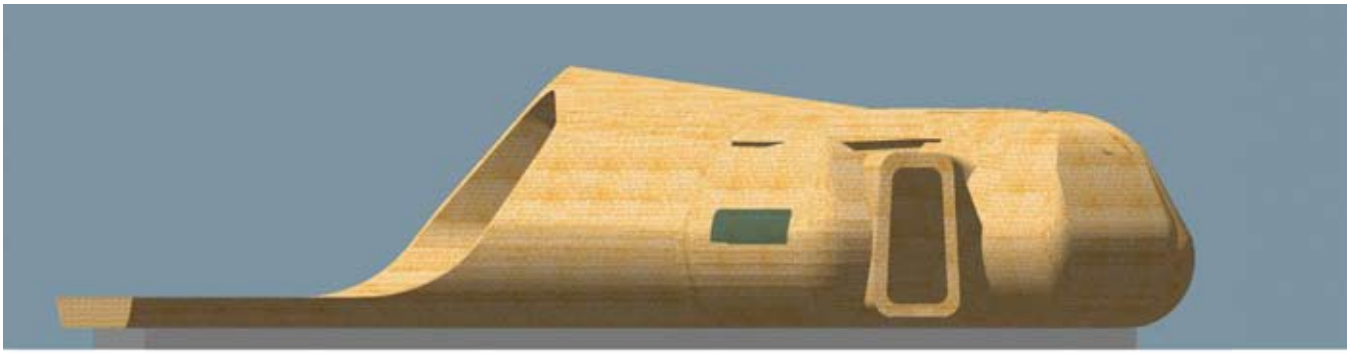




Giorgio Traverso *Evolution Portable Structure* Italy

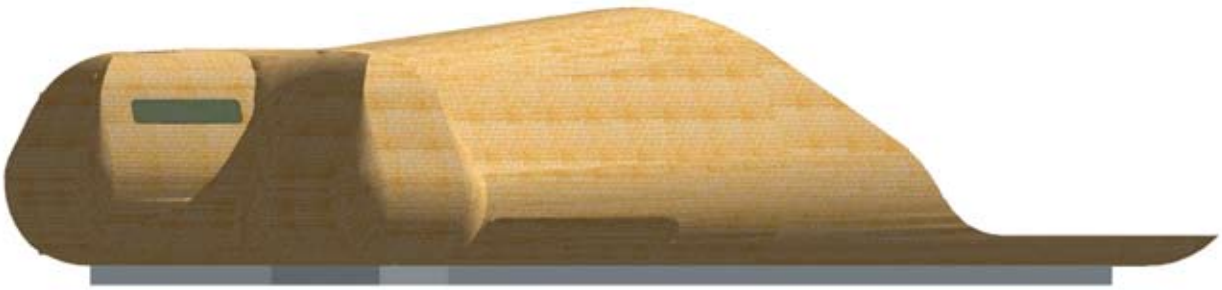


Soren Korsgaard *Woven House for Southeast Asia* Denmark

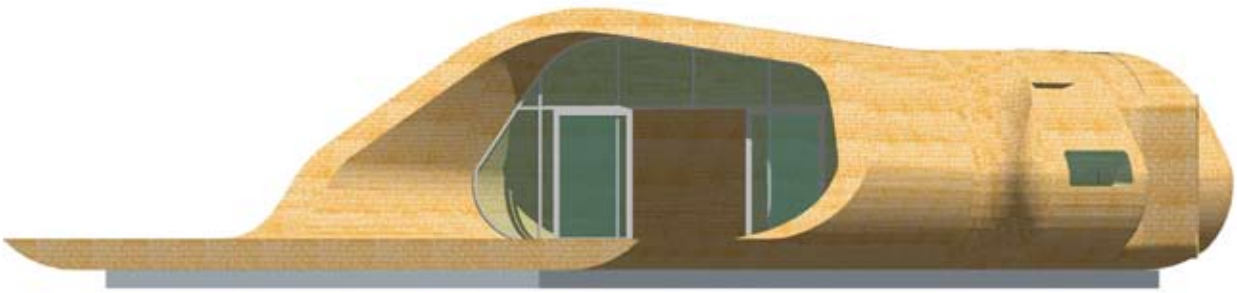


east Elevation t50

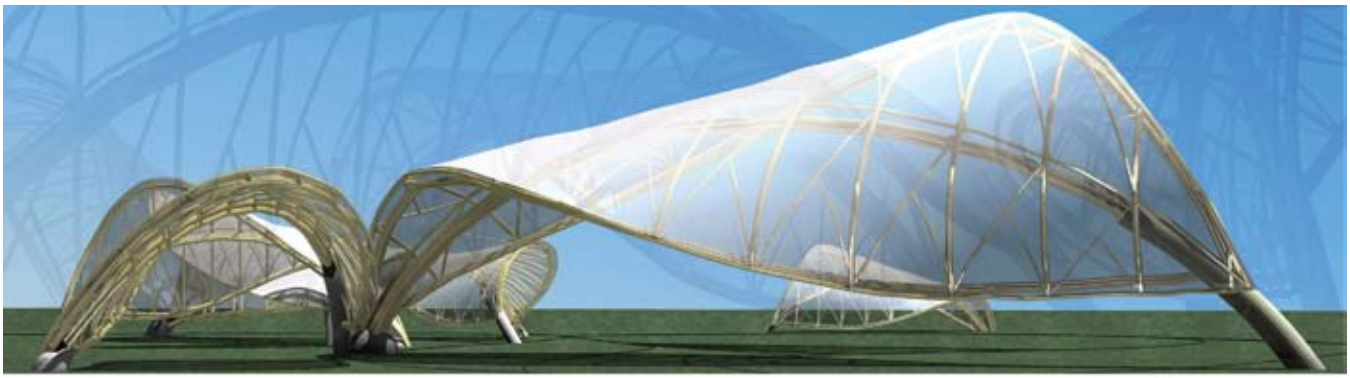
west Elevation t50



north Elevation t50



Soren Korsgaard *Woven House for Southeast Asia* Denmark



DANCE OF THE FOLIAGE

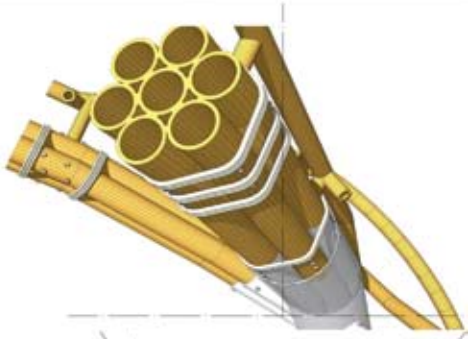
THE NEW ART REPESENTATION OF BAMBOO MEMBRANE STRUCTRUE

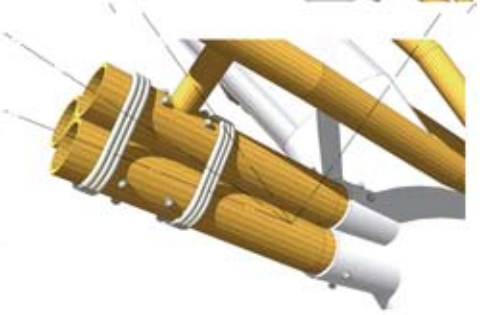
Designer / Institute of Architecture Design & Research, Yunnan Province P. R. China.

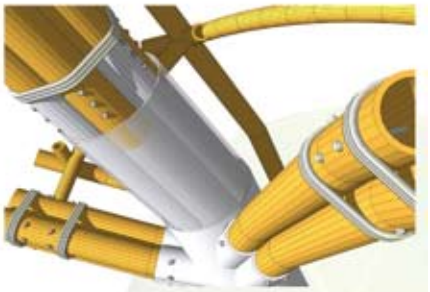
Architect / Gao Lei

Design Group / Wang Fei, Bai Wenbing

Bamboo, as one of the most important composition of current regenerative green construction material, is getting more and more designers' favor on its excellent performance.Our competition schemes give prominence to the research of flexile performance of bamboo. With the tectonic measures such as riveting ,tying ,embedding ,and so on ,it would be constitute a space membrane system with bamboo framework .And the lightness and organic form that come from the agilely handling of the bamboo performance is another important visual highlight in our design .While ,the main idea of "back-to-nature" will also boost up its artistic influence effects through the express of the design originality and the material. The bamboo membrane system as one that has both practicality and aesthetics, the performance of adaptability and multipurpose will make it could be used in most public open space such as park or campus, ect In this way, the bamboo membrane system would also be the most characteristic modern circumstance art in the environment.

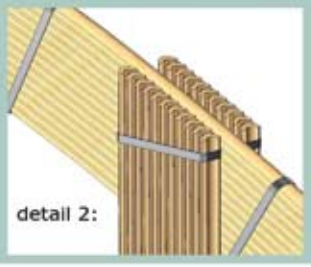


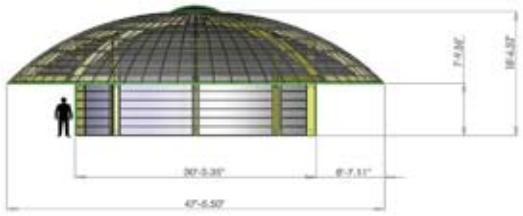




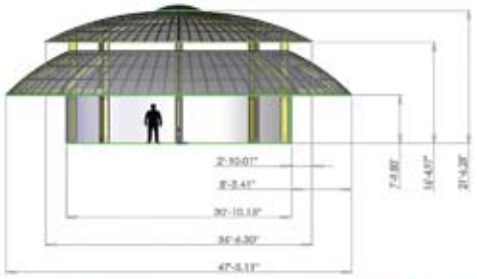
Gao Lei *Dance of the Foliage* China

THE CHI'BAGODA PROJECT: birth of a new species of sustainable architecture

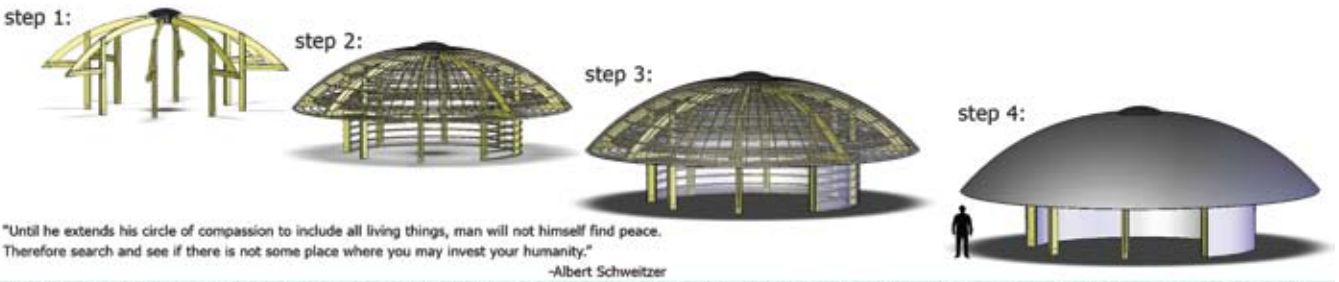




"We come spinning out of nothingness, scattering stars...
the stars form a circle, and in the center we dance."
-Rumi



These are transparent dimensional renderings of a one and two level **Chi'bagoda Perma Yurt** based on a inner diameter of **30'**.



"Until he extends his circle of compassion to include all living things, man will not himself find peace.
Therefore search and see if there is not some place where you may invest your humanity."
-Albert Schweitzer

The Chi'bagoda Project began as an exploration of working with bamboo's tendency of cracking longitudinally upon harvesting. This journey was inspired largely by the bamboo fly fishing rod and indigenous architecture through out the world. Our approach of creating glue-less, composite bamboo strip structures and beams will hopefully transform non "industrial grade" bamboo species into an architecturally viable, sustainable, affordable and seismically resistant building material. Our goal is to share this new bamboo "architectnology" with the world, via a series of outreach construction clinics that will lead to online instructional guides, promoting sustainable development and post natural disaster community rebuilding. The Chi'bagoda Perma Yurt design shown here is only the logical beginning of a sustainable architectural equation or species that will mutate and evolve over time.

The drawings shown here are specifically "tuned" to the properties of the industrial grade bamboo species, "bambusa stenostachya", utilized by the Bamboo Technologies at their Vietnam facility. They are intended to represent a potential "for profit" prefab bamboo housing system that is adaptable to any location on planet Earth.

Windows, doors and interior are absent to emphasize the structural qualities of this hybrid "organic steel" architectural process. These elements can be determined by the client and faceted into the frame.

Steps 1-4:

Step 1: Prefab, Chi'bagoda parts, one or two levels, are bolted together atop a prepared foundation. A custom steel "hub" can be utilized for the center anchor point. This "hub" will facilitate ventilation. It could likely be replaced with a threaded cable or other more affordable custom joinery. Multiple rooms can also be joined and framed at this stage.

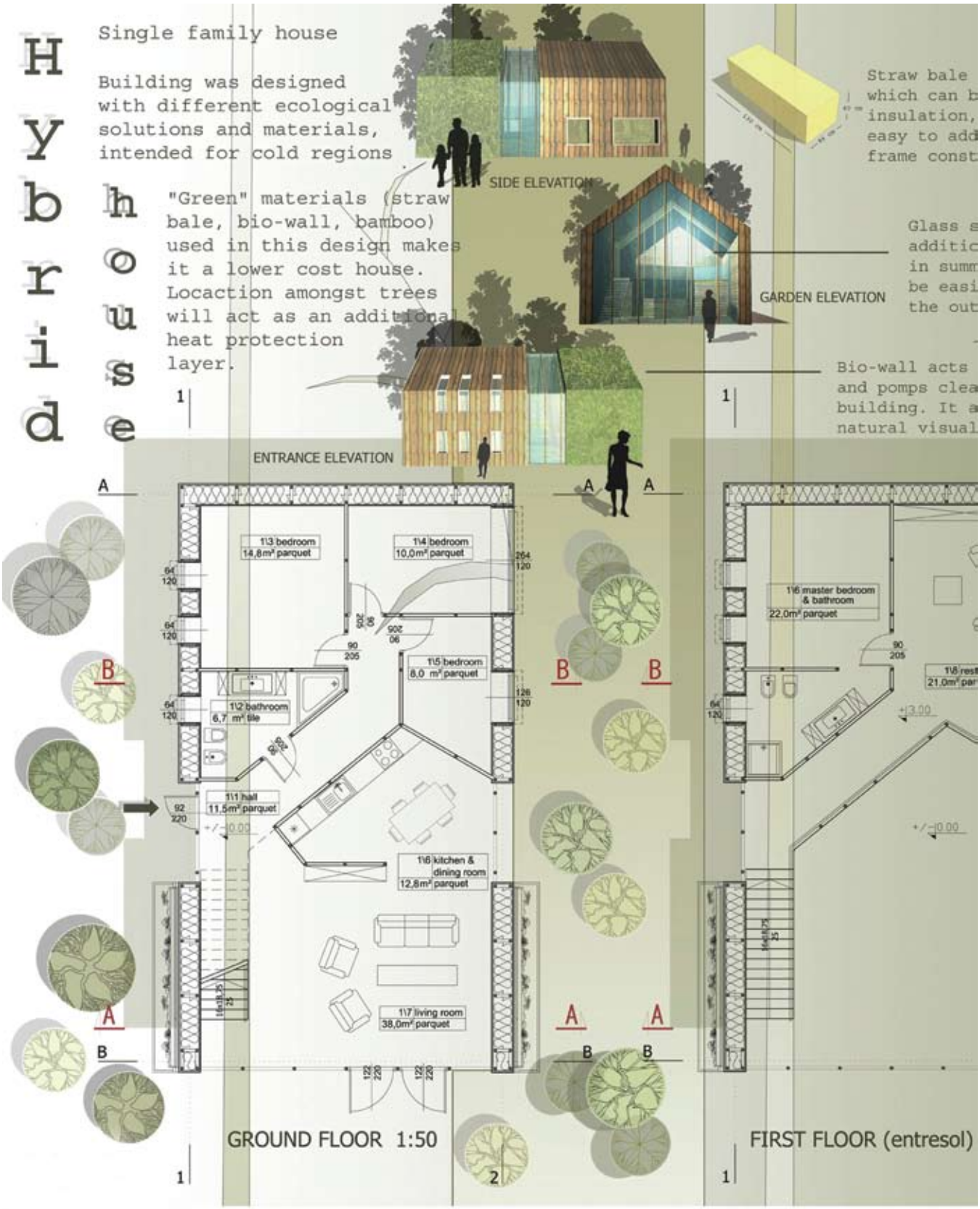
Step 2: The composite beam structure is then framed out with smaller diameter, composite bamboo bundles, likely wired or taped together. These elements are attached to the beams with screws at "wrap" points.

Step 3: A layer of woven bamboo mats, represented here by transparent mesh, are then stapled or tacked onto the frame. Insulation strategy, if necessary, is implemented during this stage.

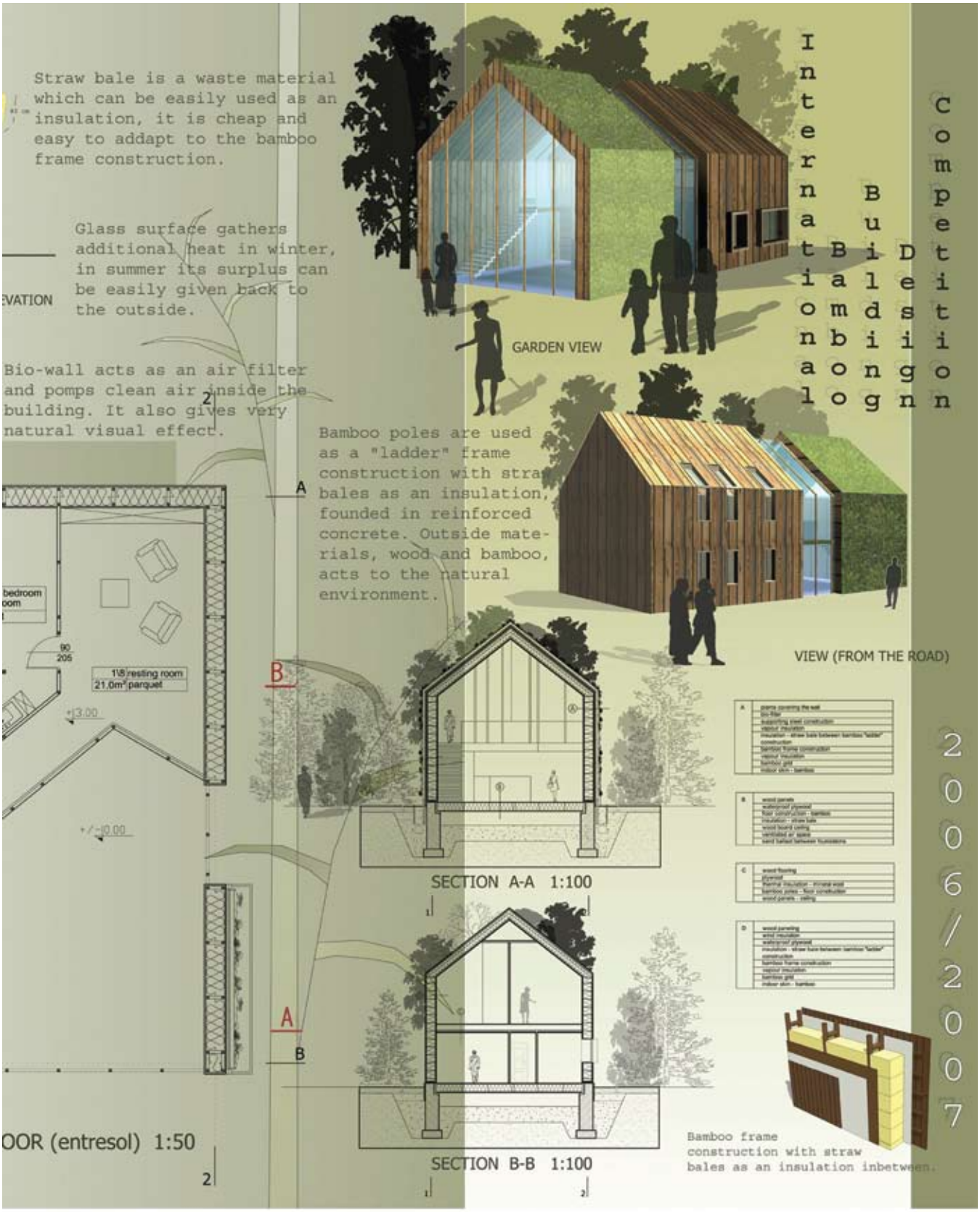
Step 4: The bamboo mats are covered with a stucco finish, suited for climate. The roof can be finished in a variety of ancient and modern means, from thatch to grey water fed, living roof.

1420/affordable housing | Team: Joshua Doolittle, Glenn Schmierer, Zak Rosser, Garth Goldstein, Tony Birkholz | page 1

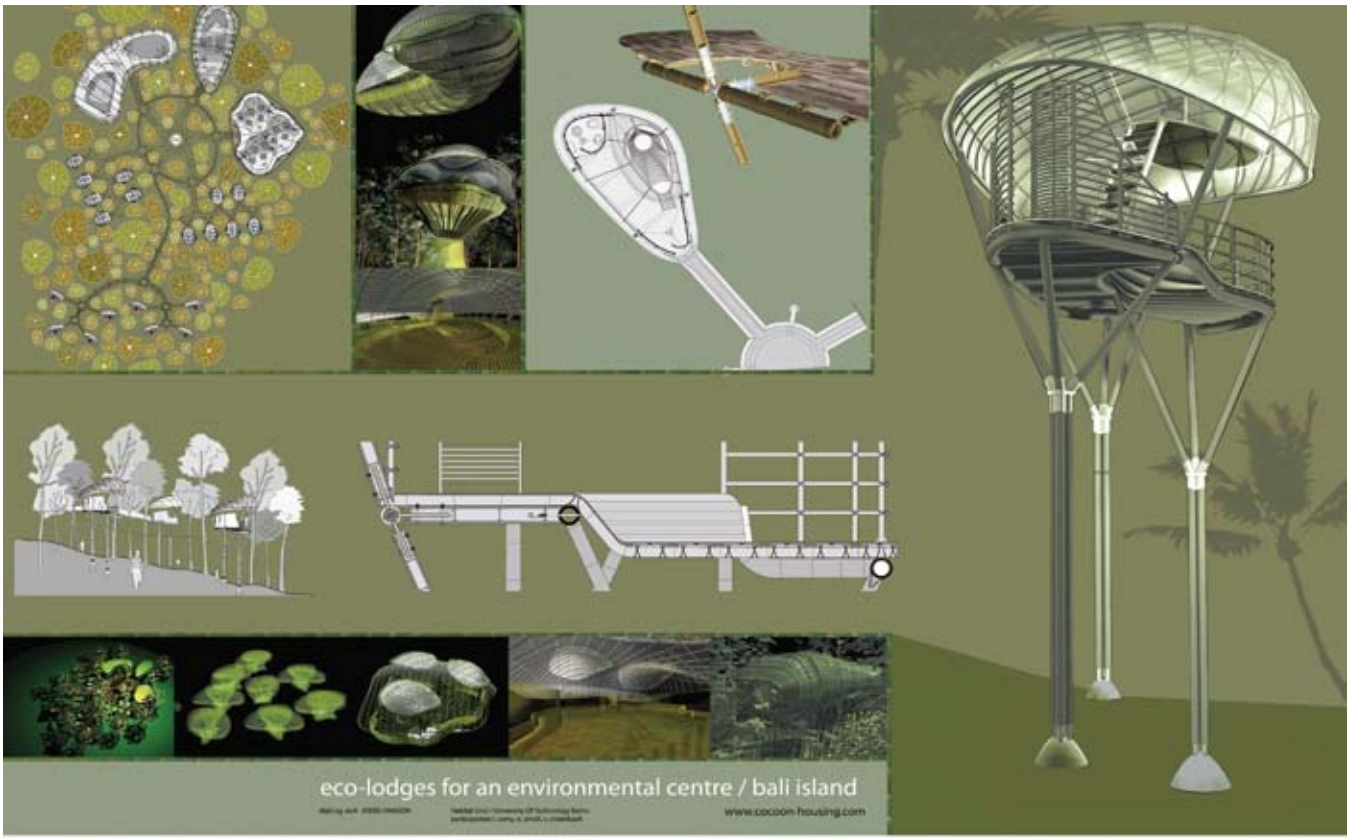
Joshua Doolittle | *Chi'bagoda Perma Yurt* | USA



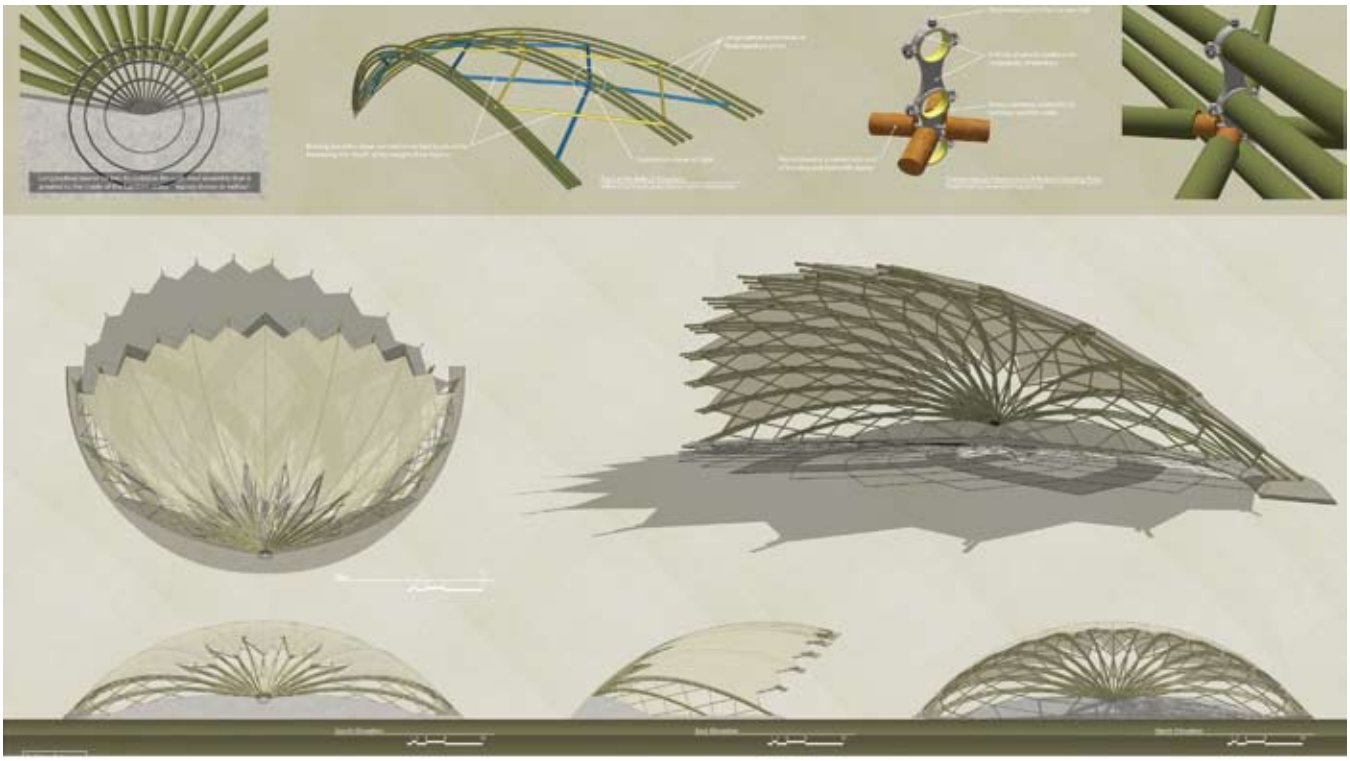
Magdalena Golebiewska *Hybrid House for Cold Regions* Poland



Magdalena Golebiewska *Hybrid House for Cold Regions* Poland



Joerg Hanson *Cocoon Housing for Bali* China / Germany

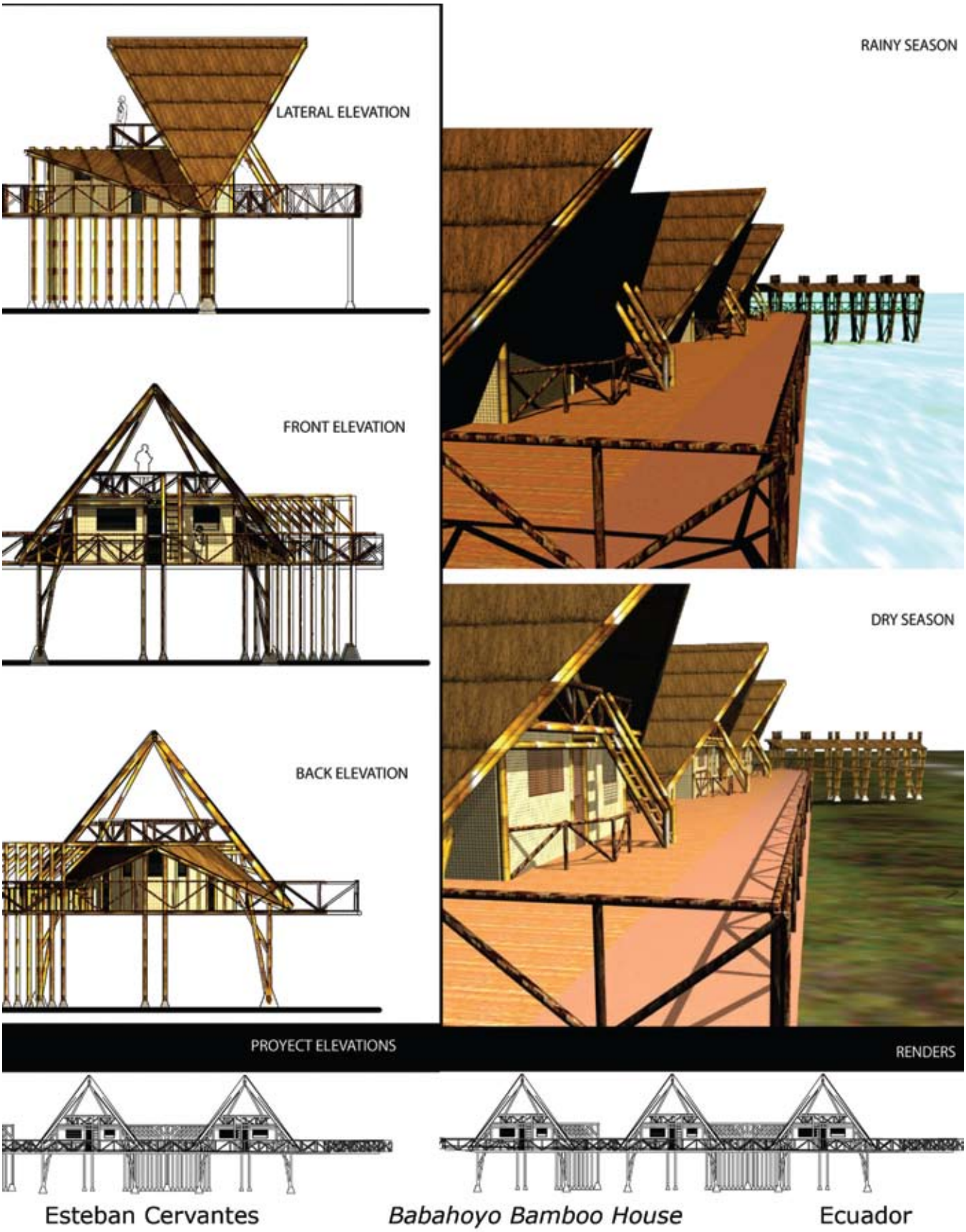


When a person is in the Bamboo Pavilion they become aware of the path of the sun through the moving shadows cast on the ground. The structure frames the surrounding area while the canvas roof billows in the wind. A person's imagination is attracted to the openness and repeating geometry of the structure. The experience of being in the pavilion connects one with their environment and puts them in touch with the simple pleasures of nature.

The philosophy of the design is the creation of a simple, elegant structure with a focus on flexibility. Flexibility was incorporated into the design of the connections, the space enclosed, and the construction of the pavilion. The pavilion could serve as a stage for concerts, an outdoor classroom, or simply a covered outdoor space in a park. This pavilion would be a memorable place, hopefully inspiring the imaginations of those who visit it.

Scott Crawford *Bamboo Pavilion* USA

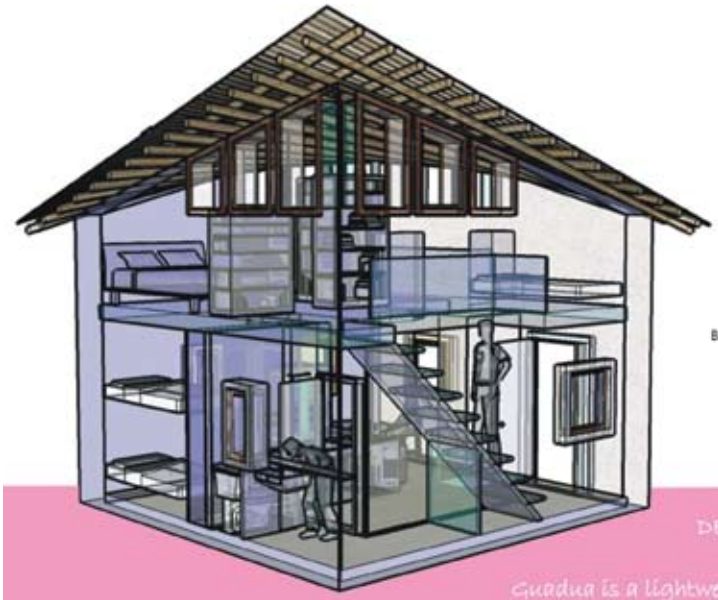
Ricardo Vasconcelos & Panamma Sananikone *The Great Jellyfish* France

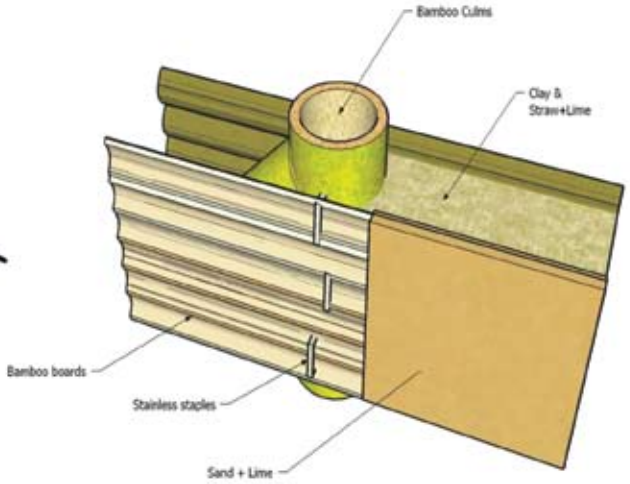


Esteban Cervantes

Babahoyo Bamboo House

Ecuador





GUADUA

BUILDING CATEGORY:
AFFORDABLE HOUSING

DESCRIPTION

Guadua is a lightweight house with five sleeping + one relaxing net designed for holiday resorts and guest house renting for the tropical or tempered climates.

A warm climate version is realized with hollow walls simply coated with a vertical traffic of air. The bracing of the carrier structure is necessary.

A cold climate version possesses full insulated walls, without bracing. The roof can be also insulated. A heater with wood is foreseen with its chimney.

Christophe G. Antoine — *Guadua Guest House* — France

Parasitize
Under Flyover

The Oil Street Supply Depot, located by the Hong Kong Victoria Harbor, once housed many up-and-coming artists in Hong Kong. Ever since the Hong Kong Government decided to reclaim that piece of land and sold it to a local property developer, the well established local artists' community was forced to leave their base of creativity.
Art development in Hong Kong has always been overload by the local society. And there is rarely a permanent site for local artists to express their ideas and creativity.

To accommodate such a need, I intend to create a mobile and cost effective space for the homelessness local artists to develop their talent. The new artist space is located beneath the concrete flyover by the Victoria Harbor. In which, artists can continue to be inspired by the surroundings near the harbor by using those 'urban un-defined' spatial areas, which carries no market value.
Bamboo has been chosen as a material for constructing such space, as it represents the classic scaffolding construction, that are commonly used in Hong Kong. This material is economical and it also carries a meaning of mobility. The mobile space serves as a new platform for local art development.

Tsoi Ho Fai *Artists Community Space in Hong Kong* China

OCTOPUS
event tent /prototype/

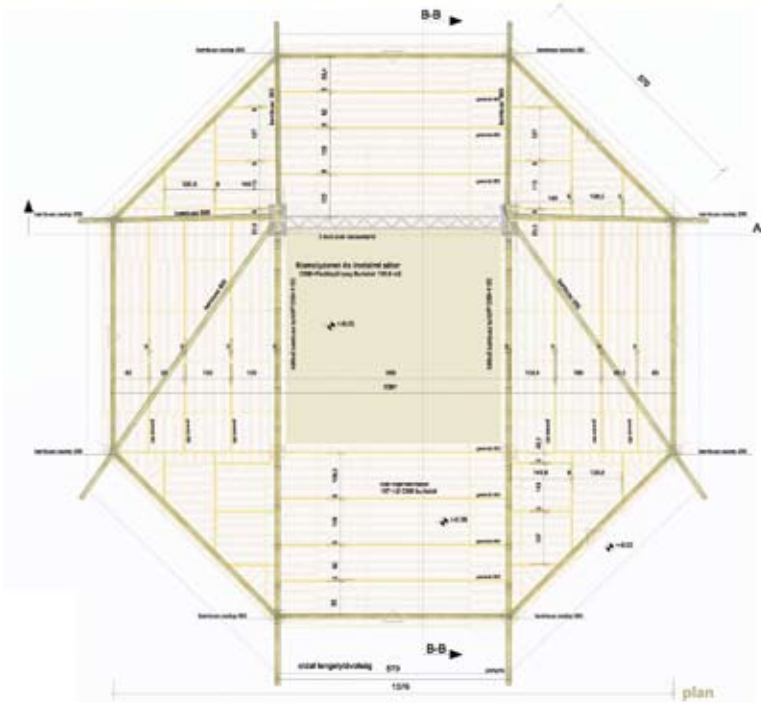
Bamboo-framed event tent with a capacity for 100-150 people.
Suitable for performances, concerts and cultural events.
The sole prototype of the tent is employed at the Sziget Festival for the fourth year.

Technical Description

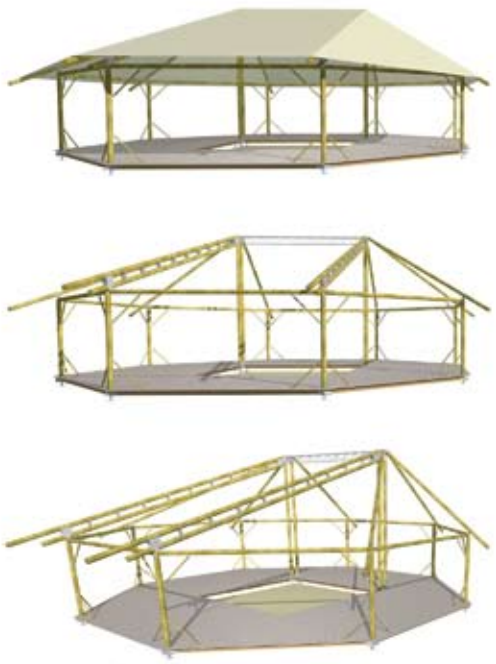
Individually manufactured metal slippers are attached to the adjustable-screw feet used in scaffolding, to which we fix a horizontal wooden framework. These "slippers" join together the beam platform structure and the bamboo pillars. The platform structure is Plywood-coated. Eight bamboo pillars, each with a diameter of 15cms, stand in a circle with diagonal reinforcements and support the bamboo-cornice. The main pillar is composed of two bamboo poles tied together and joins the bamboo beams of the roof structure. Metal elements fixed to the bamboo at the nodes ensure bolted joints that can be easily unfastened. The covering of the tent is waterproof canvas coated with PVC.

building category: Pavilions, Conference Centers, Roof Structures

OCTOPUS event tent



plan



3-D views

Andras Gross — *Octopus Event Tent for Festivals* — Hungary

Contemporary Bamboo Housing

Beyond traditionnal aspects of structural qualities of Bamboo, in architecture using multiple original shapes to eccentric ones, we are proposing a construction using modern language.

From mid-range housing to high-end, this minimalist approach to Bamboo constructions is mainly focusing on the material's environmental and aesthetic qualities.

In order to reduce production costs & time, the straight lines in the design is helping the pre-fabrication methods but also removing most of un-necessary stylistic details. The bamboo is laminated in some cases and considered like noble wood in others.

The exterior treatment of the building is inviting the user inside, where bamboo is placed against warm elegant materials & finishes. Since the building's structure is hidden, the spaces open and because of the panoramic windows, this housing is unique and soothing.

The building shape was also designed for its modularity features. Multiple configurations are possible to house single families, multi-generational families, groups or even small communities.

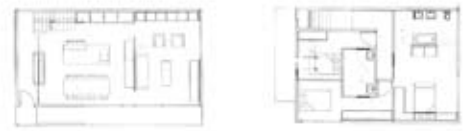
In addition to the modularity aspect of the building, it is possible to upgrade the package with green solutions in order to meet international LEED requirements, like solar or green roofs, rain collectors, water recycling devices and more.

- Optionnal ecological packages : "green" or photovoltaic roof options, individual or shared rain collectors.

- Individual houses - Residential areas - Holiday villages

Interior shots of option 3 :

Entry — Living



Ground level, option 1 — 1st. floor, option 1

Kitchen + dining room

Ground level, option 2 — Ground level, option 3

Master bedroom

1st. floor, option 2 — 1st. floor, option 3

Guest bedroom

Gau Designs — *Contemporary Bamboo Housing* — Quebec, Canada

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