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Rising Canes Pavilion by penda

October 1st, 2015

Rising Canes at the Beijing Design Week 2015:

Over the last year our studio developed a structural system, which is entirely made out of Bamboo and ropes. The outcome was a Pavilion for the Beijing Design Week at 751, a creative hub in Beijing. This Pavilion can be seen as a first step of many to follow, as the structural system is fully modular, ecological and easy to expand in every direction. We chose Bamboo as a main construction material, as it has long traditional roots in China and is a fantastic building material, which currently leads a underrated existence in the architectural process of construction.

Some Bamboo facts:

- Bamboo matures within 4-6 years, can reach 40 meters height and can grow up to 1.4 meters a day.
- Bamboo produces up to 35% more oxygen than any other comparable stand of trees, while absorbing and equal amount of carbon dioxide. Furthermore it has the ability to purify the air around the shoot.
- After harvesting Bamboo, it does not need to be replanted, as the root system stays alive and can regrow by itself.
- Bamboo is 2-3 times stronger than a steel beam of similar weight, which makes it an excellent construction material.

For our Pavilion for the Beijing Design Week, no nails or screws were used for the structure and all materials are 100% recyclable. Furthermore the Bamboo does not get drilled in the process. All joints are tied with ropes, which leaves the Bamboo canes unharmed so they can be reused after the installation. We see our project strongly connected to the 'Cradle to Cradle' movement, which proposes a holistic economic, industrial and social framework that seeks to create systems which are not only self-sufficient, but also essentially waste-free.

During the Beijing Design Week, visitors will seed plants into some baskets, which get connected to the pavilion. The plants will use the structure to grow along and after some time, nature will be the main design-element and architecture comes second.

Last but not least, the Pavilion for the Beijing Design Week was constructed with a 'do it yourself' approach by our incredible team of pendas, in order to gain a better insight of the structural behaviour to design larger developments using the same principles.

Vision for Rising Canes in the next 10 years:

We believe that in present times a sustainable way of construction is more valuable than ever. The current state of irresponsible city planning, air-pollution and economic crisis asks the architecture profession to rethink the process of building. The use of natural materials like Bamboo and connecting it in a smart, modular system, gives the structure the freedom to grow in every direction. By adding and connecting new bamboo canes, the structure grows and becomes a stronger system that is able to take on more loads to the building.

To ensure a steady building material supply, a neighbouring bamboo grove gets planted. For each culm of bamboo taken as a construction material, 2 new trees needs to get planted to the forest instead. This approach secures the demands of building elements in the long run and creates a beautiful bamboo forest surrounding the development.

Starting with a small structure for the Beijing Design Week, the individual elements get delivered to another site in order to expand its size. Located in Anji County, the largest export region for Bamboo in the world, the system can grow to a habitat for 20 families within the first 9 months. As the number of inhabitants keeps growing, the structure gets extended to accommodate multiple communal spaces, bridges and even floating structures. By 2023 the bamboo development is extended to an urban configuration, which inhabits a population of 20.000 people and a surrounding bamboo grove of 250 acres.

With this patient and natural expansion, the project describes a true ecological approach of growth, which leaves no harm on the surrounding environment nor on the building material itself and is therefore a counter-movement to a conventional way of the present construction process.

PROJECTNAME	Rising Canes for Beijing Design Week
PROJECTTYPE	Residential, Hotel
PROJECTLOCATION	Beijing 751 / Anji County
PROJECTYEAR	2015 - ongoing
PROJECTSIZE	Varies
PROJECTTEAM	Chris Precht, Dayong Sun, Kerry Xie, Veit Burgbacher, Bai Xue, Quan He, Li Pengchong, Frank Li, Snow Sun, Anna Andronova
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