

DOU PAVILION: REVOLUTIONISING ARCHITECTURE WITH AN EVOLUTIONARY BUILDING SYSTEM

The Dou Pavilion was assembled on site within three days

Professor Zhu, from the Chinese University of Hong Kong, has been researching pre-fabricated lightweight construction and building technology for a decade. This year, the veteran was invited to join the China Pavilion team to assemble the wooden one-storey 'checkered playroom' (so-called because of its fluctuant illusion) for the 2016 Venice Biennale.

Components of the timber pavilion were manufactured in China and meticulously packed and shipped to Venice where it was assembled on site within three days.

Dou Pavilion at the 2016 Venice Biennale

One of the highlights at this year's Venice Biennale was a playroom that gave children in rural China an opportunity to go to school... and visitors, tremendous joy.

The Dou Pavilion is the brainchild of architect and professor Zhu Jingxiang, who designed it for remote villages in China where children do not always have the luxury of school facilities.

The playroom models on a 1:1 scale with the original kindergarten built in Gansu province in China. It is constructed using concave and convex squares made from Oriented Strand Boards and softwood for both the interior and exterior.

To counter seismic activity, the structure is designed using timber sticks and panels. Panels are oriented in three directions to resist lateral force while the comprehensive connections to hold the architecture create an integral structure that provides rigidity to seismic force.

Liang Jingyu, curator of the China Pavilion, commented that the work demonstrates the possibility of "less human intervention playing a role in a larger scope" and the potential "to change the current trends of inefficient, energy-consuming, little-or-no design, and environment-destroying housing practices in the vast rural areas".

"The Dou Pavilion is a great example of how architects contribute to society by creating architectural designs that are innovative, sustainable and full of humanity," said Dr Lin Liangqi, president of AkzoNobel and partner of the China Pavilion team. "The partnership demonstrates our commitment to making people's lives more livable and inspiring by providing everyday essentials that help to build more 'human' cities."

Professor Zhu has since developed a series of prototypes that have been applied in far-flung areas across China and abroad.

A CHANCE AT SCHOOL

The Dou Pavilion was first assembled in Gansu province last year in collaboration with the Western Sunshine Rural Development Foundation to promote basic education for pre-schoolers in rural western China where many lack modern facilities and teachers.

The playful design of the playrooms was a hit. Even without toys, the children were able to enjoy themselves. Although different from the traditional classroom design, the 'boxes' on the walls and floor are child-friendly. The unique pockets of space are also an important supplement to the original school curriculum as spatial exploration brings many benefits to a child's physical and mental development. Equally significant is the playroom's impact on community-building—the light and user-friendly material meant that the local community was able to be involved in the assembling of the playroom.

Since its construction, demand for it has been increasing with two more being built in Chongqing and Yunnan province. To reach more children in other remote parts of China, Western Sunshine and other charity foundations have offered to mass produce the playroom using American softwoods. The lightweight generic design will be adapted to suit the local context and specific needs.

The lightweight building system is also significant in the future development of Hong Kong, where pressure is mounting over the lack of land with flexible spatial development and design.

For instance, to function as a shelter, the lightweight design can be installed atop an existing heavy structure while still keeping its original architecture. Manufacture and installation is cost-efficient, safe and concrete-free, thus making it a more environmentally-friendly option.

When the 2016 Venice Biennale comes to a close, the Dou Pavilion will be sent to Hong Kong to demonstrate the sustainability of the lightweight building technology. ☺

Children finding great joy in the Dou Pavilion

Interior