

Blossom **a flexible cable tension opening and closing space steel-wood** **composite bionic structure pavilion**

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Abstract

It was built in a century-old pear orchard. Take the meaning of "pear flower", it was designed a roof that is freely stretched like a petal, adjusting the opening angle according to the change of climate, meeting the needs of different functions such as rest and sale, giving the building vitality. Adopting the advanced building technology and local materials, adopting the modes of assembly, modularization, and Internet customization, which were easy to transport, install and construct. The main structure adopted a flexible cable tension/traction opening and closing space steel-wood composite bionic structure, which was mainly composed of ground screw foundation, bottom platform, triangular support system, lightweight movable roof truss, steel-wood joints and suspension cables. The openable and

lightweight roof was composed of DuPont paper and wooden frame, and the structure was simple and distinct. Climatic conditions and building performance were considered. The materials were environmentally friendly, sheltering from the sun, wind and rain, and equipped with solar lighting system, which fully reflected the respect for the nature, environment and culture of the pear garden, reflecting the adaptability and dynamic life characteristics. It tried to intervene in the village in the lightest way, to maximize the authenticity of the village and bring the new modern architectural experience to the village. It was constructed by 15 teachers and students in two weeks, which won the second prize of the 2019 UIA-CBC International Colleges and Universities Construction Competition.



Figure 1. Roof fully open. By Feng Deng

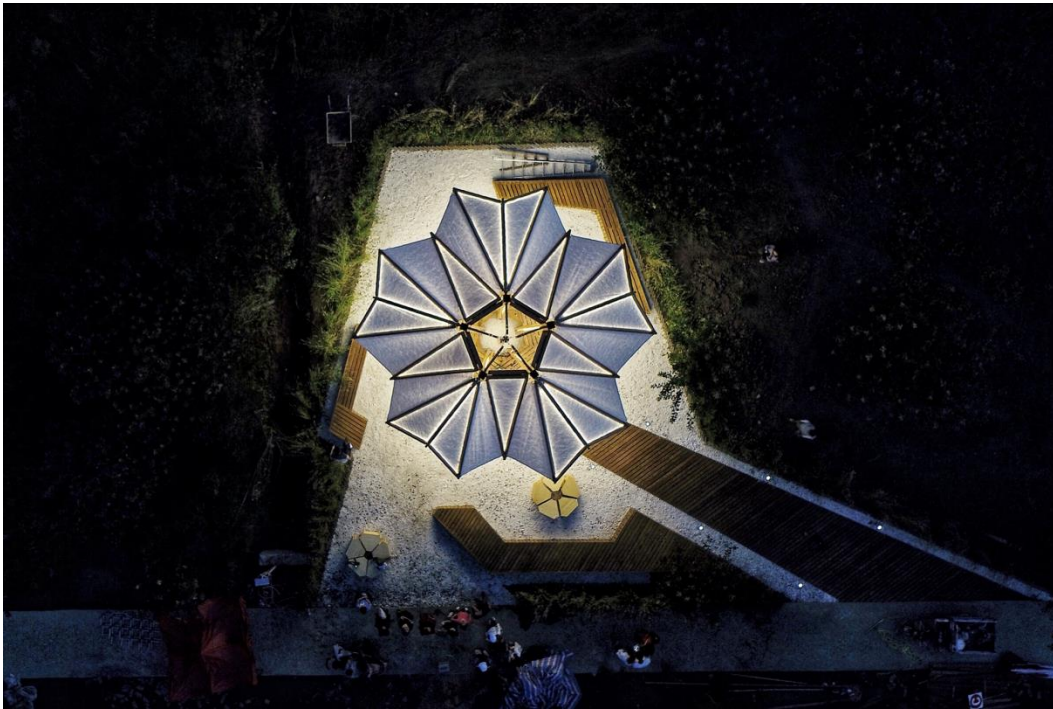


Figure 2. Top view. By Dehan Li.



Figure 3. Roof half open. By Feng Deng.