Regenerative Construction for Rural Revitalization

“Q-Village Theatre” for Xia Mutang Village, Wan’an County, Jiangxi Province, China.

Material: Local Bamboo, steel sheet, living hinge, concrete, LED strip, fluorescent stone

Target: Rural revitalization by exploring the combination of digital design and traditional bamboo processing techniques, reviving the new design potential of traditional materials in a replaceable, recycle and regenerative way.

The “Q-Village Theatre” was a design work of the Tongji University team participating in the “Third International University Construction Competition in 2018”. In the context of the rural revitalization of the national strategy, the competition was held in Xia Mutang Village, Wan’an County, Jiangxi Province. The project was required to be completed in 15 days.

Using the bending resistance of the natural bamboo piece, the main structure elastically arches the bamboo piece according to the Euler elastic line principle, that is, the large deformation of the elastic straight bar (when the axial pressure exceeds the bending form of the Euler critical load), and the two ends are fixed by movable hinge; the secondary structure is woven by the shortest distance connecting the two points of the surface, and the change of the weaving density implies the density of the inner and outer space connections, and then the overall shape is completed.

The center of the theater is covered with bamboo tiles, and 8 solar-powered lights are inserted. It can be used as the base lighting for the stage without additional power supply. Fluorite is placed inside the circular concrete floor. When the night falls and the lights are turned off, you will find many stars appearing on the ground.

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