



KADK : FARAJOUR PAVILION

DESIGN NERDS

ROSKILDE

2012

This project explores the use of fiber-reinforced composites beyond their current framework. In addition to the traditional qualities of lightness and strength, composites have a high bending capacity.

To explore this potential, this project develops an active bending grid, taking the starting point in a brief to provide a space for seating and relaxation for the 2012 Roskilde Festival.

The pavilion develops an alternative approach that uses the capacity of a force-based modeling approach to analyze descriptions of material behavior at multiple scales, integrate bending and closely match the design process with the analysis and on-site assembly process.

In detail, the Faraday Pavilion, a GFRP elastic gridshell with an irregular grid topology. Gridshell structures are self-formed through an erection

process in which they are elastically deformed, and the prediction and steering of this aspect becomes a central part of both architectural and engineering design processes. The material-oriented numerical simulation approach developed during the project links a top-down design intent with an understanding of the behaviour of the base.

The topology of the grid is not predefined - instead, the placement and path of the elements are determined by the desired target geometry and a shape search process that integrates bending capacities and trends behavioral characteristics of FRP tubes in a model of digital design.