Reflection

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Name of studio: Graduation studio for Architectural Engineering
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Theme of the studio and my project:
The theme of studio Architectural Engineering is to research the Architecture in
the aspect of certain technology in combining with the use and context. I chose
the research of sustainable material and the application in structure and
construction as my technical fascination in a context which is a green land
between Amsterdam and Haarlem, called Brettenzone. In Brettenzone, with
the increasing requirement for further urbanization and comfortable living
environment, the problems caused by mono-functional development and
environmental pressure from industrial area have to be solved. To provide
amenities with ecological development strategy, the temporary multifunctional
bamboo stadium is the aim of my research and design.

Introduction of methodology:
In the part of researching using bamboo in temporary stadium, the
methodologies of researches by literature, case studies and design have been
used. In order to research the bamboo structure and materialization of it, the
research by design is the main methodology in order to integrate structure and
architectural design in a natural and pleasing spatial quality. Drawings and
physical models are bing made to research the structural typology and desired
spatial quality.

Relationship between research and design:
Researches are be done based on the research question which is how can
bamboo as both living plant and building material in temporary stadium design
augment the recreational and ecological values for local context. The aspects
of living bamboo in urban level, temporary disassembled bamboo structure,
structural typology of stadium and spatial quality of bamboo structure are the
main issues of the researches. The conclusions of sustainable value of living
bamboo in urban scale, disassemble joint by using metal plate and inserted
metal connection in tensile joint, self-stable structural component and the
character of repetitive rhythm of bamboo structure are given and used in later
design part. As temporary bamboo stadium in urban context, the design
strategy is came up with both on urban and building scale. In urban level, the planning of living bamboo is implemented as green belt in polluted area and bamboo grove in public space in order to provide better environment for local people. In building scale, the stadium is guided by the conclusions from research and further study of the prefabrication system of the materialization which contributes to the construction in a more easy and sustainable way. By integrating function, structure, detail, climate with spatial quality, the project intends to show a appealing bamboo building in a sustainable way.

Images: from research to design

Research of disassembled bamboo joint

Research of structural component
Integrated design to show the spatial quality

**Relationship between the project and the wider social context:**

In the project, the temporary structure by bamboo with disassemble joint has been studied which could be an alternative option to wood structure buildings because of the lower ecological footprint and impact to environment. The research of modular structure as well as the prefabrication facade, floor and roof panel could be an easy and sustainable way of construction to many circumstances and contexts. The integration of function, structure and spatial quality could provide people a pleasing and natural atmosphere in the urban context which infills with concrete jungle. Together with the urban planning of living bamboo, the bamboo building could be an ideal place for public to relax. As stated above, the strategy of introducing bamboo public buildings in urban context can be beneficial to both sustainable development and living conditions of human beings.