

GRADUATION REFLECTION

Idil Gumruk

As part of Sustainable Graduation Studio graduation studio, my project was focusing on Structural Mechanics and Design Informatics. The main focus of this project was to develop a computational approach to optimize material uses of the construction material -earth and bioplastics in response to structural requirements. Therefore, the computational approach was addressing the Design Informatics while material properties and topological optimizations were addressing the structural mechanics topics.

The research approach did not work out as smoothly as I was hoping. Not every code I wrote worked out, and I had to change my approach many times which caused me to waste a lot of time, even though those times spent were valuable later as I get better and faster at writing codes. However, I believe I get to the point I aimed for, but I didn't have enough time to explore my arrival point. The design was the process for the research. Therefore, the design was not the main goal but was the enabler of the learning process.

Many of the aspects of the project is experimental. Therefore, the project itself is not a product that can be readily available for public or the practice of architecture. However, many of the codes, tests and findings could be applied to further research within the practice. The projected innovation has been achieved on the theoretical level, and proof of concept level. However, the innovation wasn't ready to be used in practice.

The project contributes to different aspects of sustainable development. On the material end of the project, the production of a panel out of bioplastics was fairly new to the field of architecture. However, the bioplastic panel is not developed to be an off-the-shelf product. It still needs serious further research to be implemented in a larger scale. The use of topology optimization is nothing new in engineering and architecture. However, it's implementation into design process in architecture is not as common. Typically, these processes added on to the design after the design is established. As a result, the project does not propose an ultimate answer or solution to use of biodegradable materials in architecture or reducing material use by topology optimization in design, it does contribute a new element into the pool of research for the future researchers to move forward. The project didn't necessarily focus on socio-cultural aspects of architecture, however it's positive impact on environment can be interpreted as ethical impact. The biggest moral issue I was confronted with was the use of edible materials. However, I still believe it's more acceptable to use edible materials, in a country where there is already plenty of food wasted, than using materials that are essentially bad for the environment, the origin of food.