P5 Reflection Paper

Structures for Archaeology

An Architectural Sheltering System
For Monuments & Excavation Sites, in
the case study of Ancient Eleon in Greece.

Stefanos Koufopoulos
(4624866)

Mentors:
Mauro Parravicini (Architecture) &
Marcel Bilow (Research & Building Technology)

External Examiner:
André Mulder

aE **INTECTURE**: **Architectural Engineering** graduation studio
MSc Architecture, Faculty of Architecture & the Built Environment
TU Delft

September 2018

The project initially aimed to create open-air museums for visitors by designing sheltering for sensitive archaeological sites or isolated monuments. Thanks to the incredible results of the research undertaken, it has furtherly evolved towards an alternative strategy; that of a transitional sheltering system for both unearthed and conserved archaeological sites and sensitive ancient remains which would dramatically improve the on-site working conditions of specialists when at the same time creating a sophisticated structure that would possibly attract both visitors and locals.

Relationship between research & design.

In my specific case, the relationship between research and design is continuous and interlinked in the final design outcome as an application of a shelter prototype in archeological sites. The research took place in three parts. Firstly, there was the initial findings about the context-objective (analysis of archeological sites in the Mediterranean and Greece) and possible locations. Secondly, the research paper, based on an analysis of a limited number of shelters as case-studies concluded that a modular system is preferable. Although dependent on the requirements, the structural thinking and principles are not limiting the aesthetic outcome. The comparison of materials, geometry and other parameters concluded that a componential system composed by a combination of structural skeleton along with a covering membrane can be an ideal direction for a shelter with modular properties that addresses different sites. Thirdly, in the post-P2 period, the location was defined along with a photogrammetric site survey to support the case-study in an ancient acropolis of Eleon in Boeotia (Greece). The design research incorporated all knowledge learnt before about heritage shelters and technical requirements, leading in an exploration of form and construction technique, to conclude at a design prototype both as an architectural intervention and a well-engineered product.

Relationship between aE studio theme & context(s) and own graduation project.

In principle, the *aE INTECTURE* graduation studio theme is about *integrated technology in architecture* that aims for an upgraded environment, society, spatial experience and architectural practice. The framework of the studio is about technical fascination and innovative pragmatism within the established themes of *flow* and *make* along and the given contexts. Whereas, my own graduation project progressed in the more abstract context of **'shelterlands'** within the theme of '**make'**. More specifically, the project modified the given context-objective since the sheltering objective proposed was about monuments and archaeological sites instead of human population in transit.

Some engineering aspects of the project developed progressively, such as modularity and rapid assembly. These are closely related with the studio's technical explorations. On the contrary, the selected case study of ancient Eleon archaeological excavation in Greece proves that the project was developed under the same theme and spirit but solitarily within a different geographical region. In this case, the own subject and case study is an exemption from the given contexts of aE but in a parallel theme and essence although a different context. The framework of *'shelterlands'* is embraced and expanded to a free-shaped research and design case-study.

Relationship between aE studio's methodical line of approach and own chosen method.

The methodical approach of the aE studio is that of a) context/site research and b) theme/technique research, incorporated briefly in a scientific paper and c) the architectural intervention based on research conclusions and findings. In my case, the context-site research was extended in order to determine the potential and ideal location for the case study of the design assignment. Nevertheless, in overall, the project followed the studio's framework of *design by research* (paper) and *research by design* (prototype). The scientific research paper aided to establish the technical requirements and aspects that shaped the project. My approach, to investigate precedents and other building systems, unveiled a different scientific field of lightweight structures and tensile architecture. The design process was initiated by deciding on the available location, following with a design 'zoom in' to make a prototype module and continued with a' zoom out' to the site in order to clarify the design again in architectural terms.

I worked away from my comfort zone of a building design towards an architectural product development, I learned an alternative process of designing architecture as seen by the eyes of both an engineer and architect, within a process of zooming in and out. I believe that the approach was merely successful because of the interdisciplinarity limitations of the project that made me struggle to define a structural principle. In addition, throughout the process, the mentoring feedback in architectural terms, for example not to neglect the users of the space, and technical aspects (componential system) was crucial to proceed.

Relationship between the project & the wider social context.

The graduation project is oriented towards embracing and preserving global heritage and its cultural value. Also, it aims to the subsequent possibilities for the protection and highlighting and exploitation of points of interest within archaeological sites. By either looking in a broader geographical context or selecting a case-study location, the project still addresses a broad scientific framework, linking architecture and engineering on the one side and archaeology, and heritage promotion on the other side. The value of the project is multifaceted and eventually requires a multi-disciplinary approach.

Even though it doesn't tackle an obviously emergent humanistic - societal issue (such as dwelling or climate), it focuses on an alternative proposal for sustainable upgrading of the architectural safeguarding of cultural heritage, which is also significant due to its extent. Therefore, the social aspect can be considered rather as socially indirect but physically and culturally direct.

In a professional framework, the transfer of the knowledge and results produced can lead towards a product development in architecture and an opportunity for an entrepreneurial attempt in the practice of ephemeral building systems along in heritage sites. Heritage sites under treatment or investigation can certainly become places of interest for summer tourists, selected visitors and locals. The awareness of the local community may benefit all.