

POLITECNICO DI TORINO
SECOND SCHOOL OF ARCHITECTURE
Master of Science in Architecture for Sustainability
Honors theses

AURORA BOREALIS ARCTIC CENTER – Wood, Light and Organicity from Finland

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The present work deals with the design of a multifunctional complex in Rovaniemi, nestled in the forests of Finnish Lapland, on the Arctic Circle.

The theme stems from a design competition, organized by ArchMedium, with the support of the School of Architecture of Barcelona, the Polytechnic University of Catalonia and the Aalto University of Helsinki, in which I participated ranking among the finalists.

This theme included the design of a planetarium, a restaurant, an exhibition space, a sauna, an astronomical observatory and ten housing units for holiday purposes.



AURORA BOREALIS ARCTIC CENTER

The project proposal, after the end of the competition, has been analyzed in depth. To achieve this, it was necessary to carry out further studies on Finnish culture, its architecture, its masters and the most popular technologies. In depth chapters were developed to analyze the essential project issues.

This research was made possible thanks to my stay in Finland and inspection of the project site in Lapland. This experience has allowed us to study the true Finnish architecture, the wooden buildings and works of Alvar Aalto.

Most of the photographs in this thesis were taken personally during the months in Finland and most of the texts consulted, present in the bibliography, were found at the Alvar Aalto Foundation and the Department of Architecture of the Aalto University of Helsinki.

The first part, with an introduction to the history of Finnish Architecture, deals with organic architecture and the work of the master of the XX century Alvar Aalto. The great architect, that has generated a national imprint architecture, linked to the physical signs, latitude and climate, closely connected with the nature of the site. Follows a study of the natural light and its use in Finnish architecture, an extraordinary element that brings to life and reveals the characteristics of other materials.

The second part deals with the technology of the Finnish traditional building material: wood. The chapter starts from the traditional construction, to the contemporary structural solutions, then illustrating the joints and forms, passing by the sensations and issues generated by wood such as fashion and choice of essence.

Further we analyze the new wooden buildings made by Finnish architects, which provide a clear vision of what is now the country's architecture, recalling the traditions, but at the same time delivering extremely modern solutions.

The next chapter is related to the project. The first part shows the design competition which originated the theme, with its announcement and the functional program. After the analysis of the project site and the detailed description of the features of the site, the second part describes the design choices of the concept and the technology chosen.



MAIN BUILDING

The thesis is completed with the boards, where the work is represented in details, with technical drawings, diagrams, exploded views, construction details and perspective views.

The intent was not to violate the Lappish nature, creating a building that would integrate well with the context, hence the idea of pushing up the land and build the building inside. The curves of the complex, which express the various functions internally enclosed, echo the curved profile constant present in the whole of Finland: the gentle Lapps mountains known as *tunturi*, the Finnish lake scenery and the waves generated by the aurora borealis.



ASTRONOMICAL OBSERVATORY

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