POLITECNICO
DI TORINO

Honors thesis

COURSE OF SUSTAINABLE ARCHITECTURE AND DESIGN

Abstract

Guggenheim Helsinki

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by

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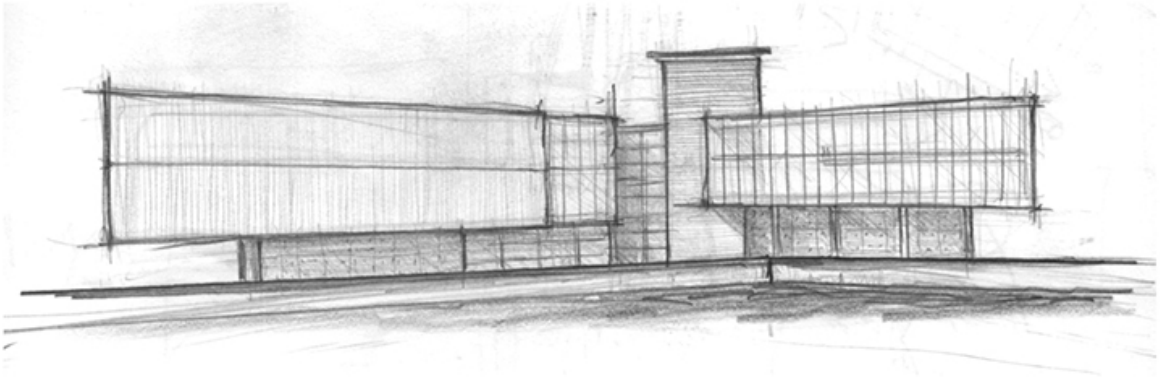
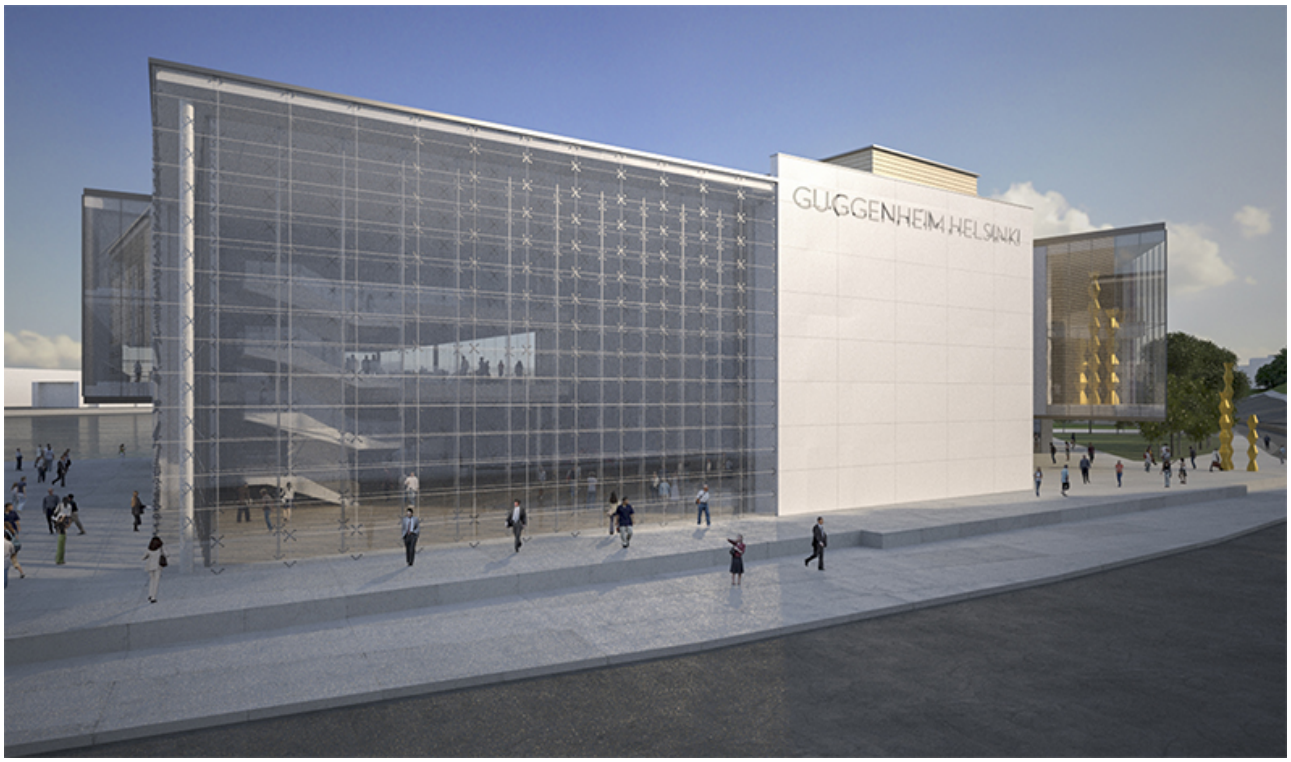
Crossroads between East and West, the city of Helsinki has been selected by Guggenheim Foundation like branch of a new museum for their own collections. For the first time in history the winner project has been chosen thought an opened contest that has gathered more than 1700 proposals.



This thesis wants to propose an interpretation of the tender notice, of which you can find all the requests and then my personal study structure in the following tenses.
The project is developed on the South Arbour bank, exactly where the city initially started to grow and near to the crucial centre of the city activities. Bearing in mind the coastline and the principal lines of the background, the project shape values the viewpoints over and from the city. The three main museum volumes are erected at different heights but they don't obstruct the view of the park and the historic buildings that are adjacent. The first volume is opened and visible toward the city by the application of ample glass walls. Inside it there are the hall and the guests' services. Some spaces are on the next levels, valued by a favoured view over the bay.
The second volume, smaller than the other ones, is the node of the various functions and between the other two buildings too. It's composed of vertical connections that lead from the hall to the spaces dedicated to the museum, on the third project volume. The block is square shaped but irregular, it seems raised off the floor and it has a strong lug wrench. Inside it, the spaces are flexible and there are an alternation between rooms and galleries that are double high. In this building there's an auditorium too, with a dedicated access and some room dedicated for didactic.
The choice of the materials reflects two specifications: the use of local elements like the wood (for the interiors and for parts of the facade cladding) and the will to insert modern materials, with particular functions like the photo catalytic concrete. This material is used in panels to cover the major part of the exterior casing. It uses the sun for a chemical reaction that absorbs the air pollution. It isn't a choice that solves the emission problem of the numerous ships that frequent the harbour, but it proposes a replicable idea that can have a positive effect if it's applied on more buildings.
The second part of the thesis it's about the approximate dimension of the bearing building. The steel was chosen for the building system because of the faster realization and the bigger è flexibility. The stratigraphy of the various elements reflexes the functions of the different spaces. After the setting out of the load and the calculation of the different parts of the loft weight, the structure has been calculated with the method of the approximated

deformability of the beams, looking for a solution for the number and the sections optimization of them. Then I did the section check with the calculation of the approximated moment and the shaping of some exemplifying pillars with the calculation of the peak load. The choice of the big lugs wrench have implicated a bigger beam shaping of the coverage, that support the underlying loft through tie-rods.



At the conclusion, the thesis wants to propose a project with great size and public importance, but with attention to the feasibility from the point of view of the structure too.

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