

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

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**The heart of the metropolis. Helsinki central library open international architectural competition**

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The thesis faces the theme of an open international architectural competition entitled: "THE HEART OF THE METROPOLIS. HELSINKI CENTRAL LIBRARY OPEN INTERNATIONAL ARCHITECTURAL COMPETITION " organized by the City of Helsinki (Finland) in January 2012 as part of the event of Helsinki World Design Capital 2012. The competition brought the ex novo design of the central library of the city, to be placed in the district of Töölö, home to some of the greatest examples of functionalist architecture in northern Europe and coveted residential area by the wealthy class of the city of Helsinki.



Helsinki Central Library (Main entrance)

The material supplied by the auctioneer is presented very large and full of design guidelines, considered the size and the importance given to the competition project (for details: <http://competition.keskustakirjasto.fi/>).

The requirements of participation required the presence of professional experts in the design team, especially in the fields of energy efficiency and materials technology in order to produce advanced plans and meet the energy demands in a very particular climate area (boreal and humid climate).

Thanks to the intervention of professor Cesare Griffa and his studio, it was decided to enter the contest by creating a "Polytechnic Team" that involved actively in the design process some professors of the Politecnico di Torino, through meetings and ongoing advice on the different topics to be discussed. Specifically attended: Chiara Aghemo, Cesare Griffa, Valerio Lo Verso, Marco Carlo Masoero, Paolo Mellano, Valentina Serra, Jacopo Toniolo, Jean Marc Tulliani.

The evaluation criteria expressed by the competition brief guided the design through 5 key points: the CITYSCAPE (the integration of the building in the urban context; the connections with the surrounding infrastructure; the relationship with adjacent spaces), the ARCHITECTURE (the design; the quality of materials, their durability and the quantity of integrated technological solutions), ACCESSIBILITY / USABILITY (the multi-functionality of the space; flexibility and creativity; the arrangement of the rooms for co-working), ECOLOGICAL SUSTAINABILITY (very limited request consumption, with the target of a zero energy building), FEASIBILITY (compliance with standards and with the Finnish legislation; and provision for a future connection with the Helsinki Center City Tunnel). To meet these requirements, especially energy, the design has required a careful analysis carried out through the preliminary IWEC climate data processing with MatLab and Ecotect.



Inside the library

The adaptability to the environmental conditions and the adherence of the structures, forms and spaces to the necessities imposed were points of fundamental importance to design a modern and efficient architectural concept. This has been possible thanks to the use of some recent and experimental techniques of parametric modeling and computing tools, such as creating ad hoc generative algorithms designed to "inform the space and matter", integrating and optimizing the architecture to its program. Really the 3 keywords "inform, form and perform" may be a summary of the design philosophy used.

Genetic parallels, flows studies, clustering activities, diagrams, networks, are ideas at the basis of spaces and events, but the Helsinki City Library is born not only from theoretical metaphors and geometrical data interpretations but also by the participation of a team that is often intervened manually in design with thoughtful choices and constructive criticism.



Section model

Finally, to conclude organically the design research were examined some specific fields of the project, as the technological equipment and lighting. At writing, however, the work done has been linked to an architectural criticism that has allowed us to revise with more detachment and firmness the product, evaluate its relevance and its place in the landscape of international architecture of our time.

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