

POLITECNICO DI TORINO
FIRST SCHOOL OF ARCHITECTURE
Master of Science in Architecture Construction City
Honors theses

Water management for the resignification of open spaces with industrial heritage. The case of the Trent Basin (Nottingham)

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The assumption this work is based on deals with the strict connection between the city and the need of its citizens to find a space where to socialize.

The architecture, and in general the design, should be the vehicles that interpret the user's needs and that by, using their resources, improve the quality of urban life and, therefore, its places.

A good design of the open space is the one that pursues as main aim the quality in all its aspects, whether they are aesthetic, spatial, visual, environmental, etc...

The goal of this thesis is to demonstrate that a proper implementation of the practices of water sensitive design, that is the management of the water cycle in open spaces, can be useful to achieve an high-level of quality of the urban space. It encourages the socialization in the places, but it makes them, overall, productively efficient and environmentally sustainable.

In order to give technically sound support to the sustained argument, some calculations for the dimensioning of the technologies used in the design phase were made (applying the "Linee Guida ARPA per il trattamento delle acque reflue domestiche"). Moreover, one of the U.S. protocols of the LEED environmental certification has been adopted, considering only those credits concerns the water resource management in the redevelopment of entire urban sections (LEED for Neighborhood Development, 2009, or LEED-ND 2009).

The thesis is divided into two main phases: the first is the theoretical study and in-depth analysis of the topics covered, and the second is the design application of the results from the research phase.

In particular, the first phase is focused on the theme of the open space and its architectural design from the point of view of sustainability. It is analyzed in two different ways: first, by investigating the relationship between open space and brownfield sites, and by the highlighting their potential to create new urban spaces; second, by exploring the theme of water as one of the tools for the design of the open space to recreate high quality level urban places.

To this end, the use of water cycle technology as a resource of the composition phase was analyzed. Notably, it was considered how an urban project, taking into consideration the natural and sensitive rhythm of the water cycle, could be useful to increase the value of the city system.

After the first stage of the cognitive process, the thesis approaches the applied-design second phase, that starts from a case study of a post-industrial abandoned area of waterfront. This site was previously studied in the subject "Arquitectura bioclimatica en un entorno sostenible", attended during the Erasmus experience in Madrid.

The project was conceived as the proposal for the student competition organized by the company of building materials Isover. The announcement required a design idea with innovative solutions about the regeneration of Trent Basin area, Nottingham.



Industrial area of Trent Basin in Nottingham, UK

Therefore, some studies on climate and bioclimatic comfort of the site were conducted in order to help design strategies.

The proposal for the competition based all the design and the bioclimatic choices on the use of the water in a useful and productive way.



Masterplan proposed for the thesis

It was planned the application of a series of technologies for the management of the water resource, that best could fit on this area. These technologies are thought as a productive tools and as a support for the choices of the architectural composition, in the field of the open spaces design.



Render of the project

Afterwards, the most representative type of water sensitive design was selected. This technology was dimensioned and the criteria of the LEED protocol were applied. In this way, the project achieve quantitative and qualitative validity.

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