

POLITECNICO DI TORINO  
Master of Science in Architecture Construction City  
***Honors theses***

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**NEW ROOFTOP EXTENSIONS SCENARIOS: STUDENT HOUSING AND COWORKING  
ON THE EX CEAT BUILDING IN VIA LEONCAVALLO**

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The thesis comes from academic research focused on regeneration of urban spaces, aiming to reduce land use and to requalify existing buildings.

The analysis of these themes started during a design laboratory at the Politecnico of Turin and they have been studied in depth with the thesis work, that deals with a rooftop extension for an old industrial edifice, “ex Ceat”, in Barriera di Milano neighborhood, in Turin. The goals refer to requalify and to renew the building to strengthen its identity and improve its visibility in urban context. It is located in an area involved in different and numerous recent urban projects and it has peculiar form and distribution characteristics: these are the reasons for being an appropriate case study.

The first part of the thesis, conducted with Elisa Cavaglion, aims to define an overall and current scenario of urban projects – Variante 200, new transportation projects and Urban Barriera Program – to establish design strategies. The interviews to arch. Loredana Di Nunzio and arch. Cecilia Guiglia have been very significant to determine demands of the neighborhood and new functions for the project.

Thus, with their opinions and with the intention to propose new project scenarios for this area, coworking and student housing, similar for being temporary spaces for the users, are the main new functions of the project.

The analysis shows a building with an ineffective and marginal role in the urban context. Although it is occupied mainly by public activities, it is missing an impulse to animate user circulation and to attract new people from parts of the city even more distant. Thus, the purpose is to revitalize the building and the urban surroundings, increase and diversify the user profiles for reanimating the edifice.

On the urban scale, the project aims to reinforce connection between building and context and to improve accessibility in the central part of the edifice. The proposal concerns new access and larger public space, similar to a square, connecting the gardens with the “ex Ceat”.



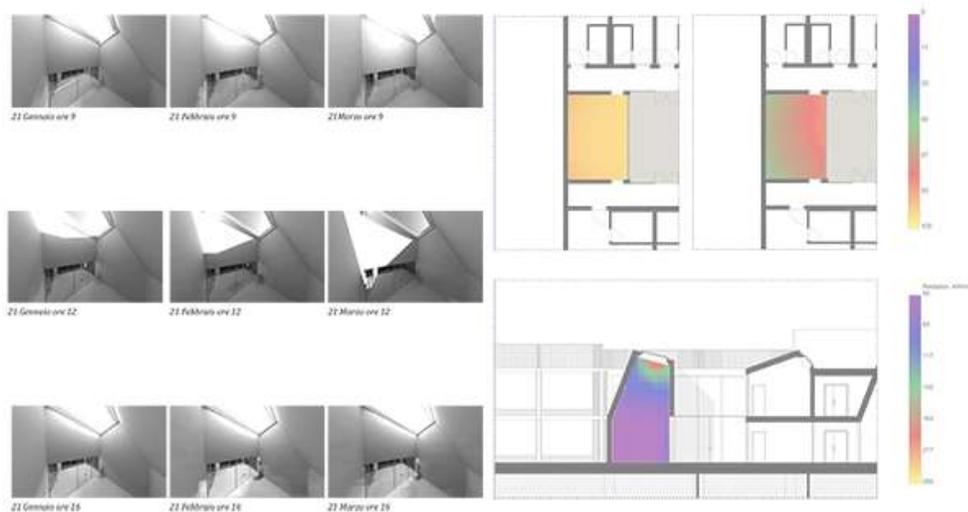
The new building addition, view from the garden “Area Verde ex Ceat”

The new staircases provide access to the added floors. The inner spaces are developed in three longitudinal volumes: the central one gives access to all the areas and it includes common rooms and facilities. Living and working spaces are located along the facades to benefit from the best view. Behind the façade, in wood – material also used for the structure and studied in details construction – the volume is very dense and only in the central part voids are alternated with rooms for common activities. Their form is established for facilitating as much as possible the natural light income.



Plans and longitudinal section of the project

Designing in relation to daylight is one the main theme of the entire work of the architectural project. The last part of the thesis focuses on these aspects to provide precise quantitative analysis; in other words, evaluate if the form of the rooms, the windows dimensions and the their locations are suitable for giving visual comfort to the users and reduce the energy consumption of artificial lighting. Useful metrics for a comparison between different lighting conditions comes from 3D simulations with specific software. The results are verified with the requirements of norms and certifications, they provide visual comfort and reduced energy consumption for artificial lighting.



Daylighting, simulation and analysis through 3D digital models of the project

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