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

INFRA_CITY
Strategies for sustainable urban development
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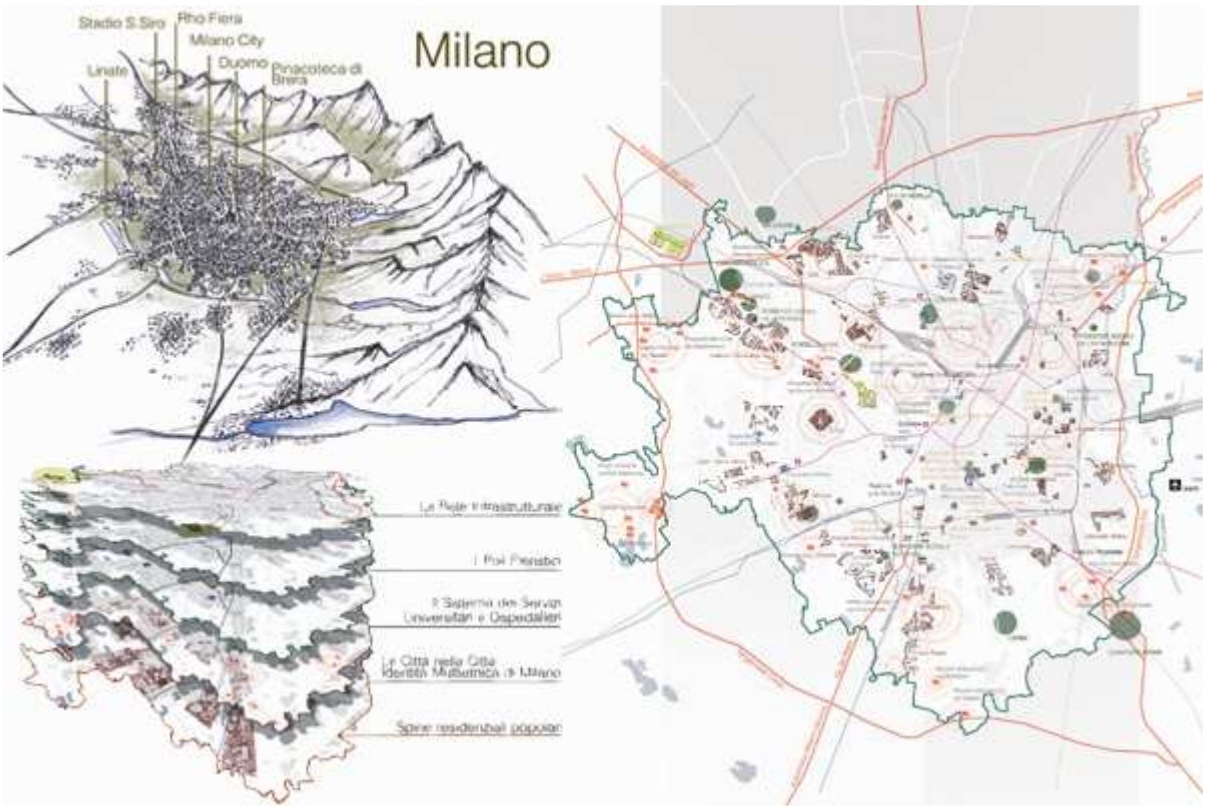
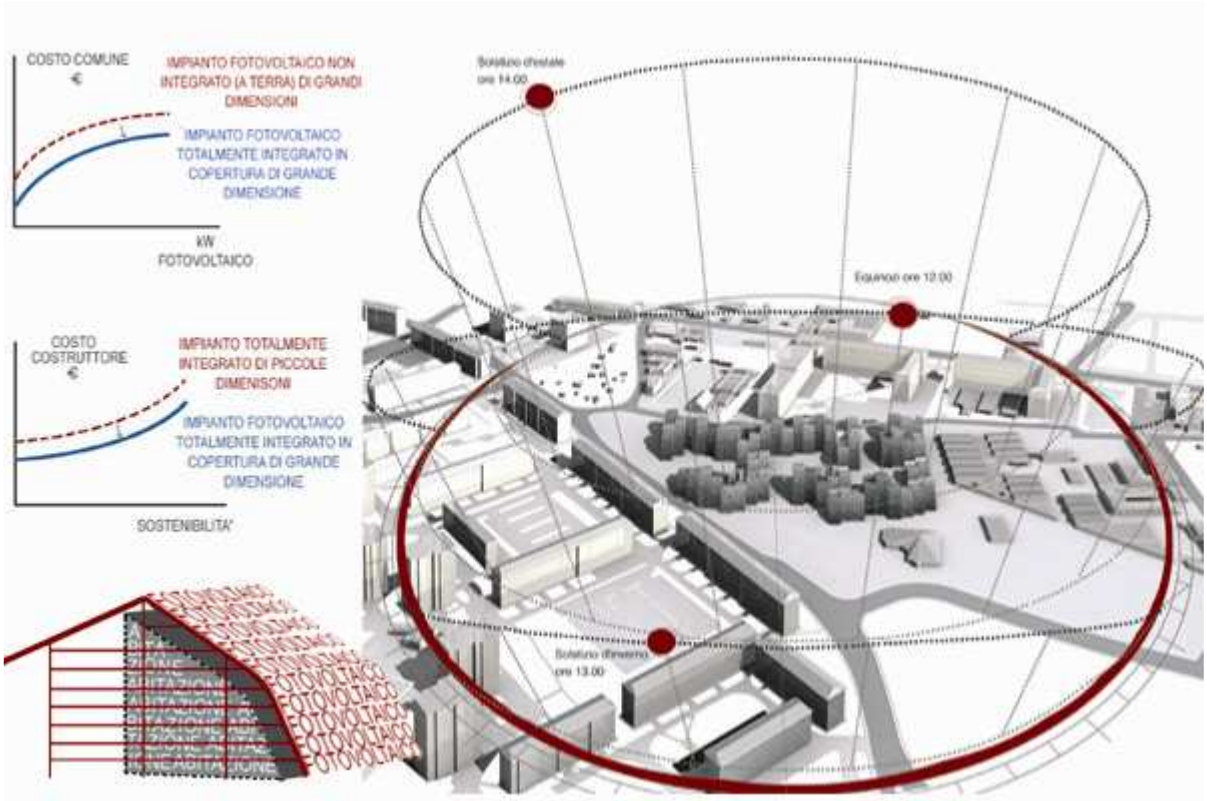
The thesis starts with a current and real problem: the living. The house is a primary need, but in each part of the World spaces and forms that architecture is able to offer not always meet the needs of a contemporary society, which is increasingly fragmented and differentiated.
If, on the one hand, sustainability is a prerequisite of contemporary architecture, on the other hand, interventions clearly indicate that the satisfaction of this condition always involves a considerable increase of building cost. This leads to a discussion aimed at researching an alternative solution that combines the constraints imposed by environmental sustainability with the need to reduce the costs of construction and then, consequently, the selling prices of the houses themselves.

The work consists of three parts:

- The first part of the study contains the fundamental considerations on which the project has been based.
From a careful analysis of different forms of living in Milan, has led the reasons of the project itself: to achieve a development that was sustainable in both environmental, economical and social sense. The adaptation of incongruous spaces in order to become places of residence arises from an inter-class "social effort", and entrusted mainly to private individuals acting favoring family or work dynamics.
There is an entire portion of the Milanese urban society that, outside of any institutional and political mediation, self-organizing and developing an, often surprising, creativity, is changing old conventions between spaces and their original profiles: Milan is a transforming city where the act of living now turns into a very broad spectrum of urban spaces, well beyond the traditional places of living.
Environments, landscapes and ways to change the territory have formed the perspectives from which we tried to start for choosing the neighborhood named Gallarate as the most appropriate context to deal with these issues in a design process.



- The second part is the most significant because it contains the project application of suppositions that I have just described. In summary, the project idea is to make an intervention, on an urban scale, at the neighborhood level, involving two subjects: the municipal administration, which promotes an economic investment with a social purpose too, and a private constructor who invests for the purpose of sale.
Therefore, were designed structures that carry out, as roof, a large area of photovoltaic panels and at the same time provide the basis for grafting a large number of homes.
For the administration the benefits would be firstly to get an economic relief, in terms of greater State incentives, to move from a not-integrated system (like the one on the ground), to a fully integrated one on the roof and, in addition, the possibility of using a covered volume to meet the demand of housing.
Just within this volume the buildings could be included, built by the private subject, that invested in, finding principal structures and coverage fully paid.
The important result would be to realize a sustainable architecture with a selling price lower than the average one. The shape of the project came from the study of orientation, shadows and solar radiation on the roof during the days of the winter and summer solstice.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Solstizio d'estate ore 14.00
Equinozio ore 12.00
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FOTOVOLTAICO


A
B
C
ZONA GIORNO
ZONA NOTTE
40 mq
60 mq
75 mq
Quartiere Gallaratese

- The third part contains the scientific support of the project, which has helped to realize the primary architectural idea and to confirm, at least at first, the real possibility of application of alternative strategies like the one proposed here.

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