

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

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**Urban regeneration of the area *Casermette* in Rivalta di Torino**

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The area of the job advertisement chosen for our Master's Degree thesis is set in the hamlet of Tetti Francesi, on the border with Gerbole di Rivalta. This location is an ex-military area that was left in the mid-1990s, and it is 100.000 m<sup>2</sup> in area. Its form resembles a right-angled triangle and it is surrounded by via Carignano and via I Maggio.



Masterplan

The involvement of the municipality expresses the wish of the locals to promote a whole regeneration of the area of Tetti Francesi and to guarantee the link between Gerbole and the centre of Rivalta. In addition our plan must develop according to criteria which promote an overall environmental sustainability.

Our plan keeps the majority of the area as public parks, organized as spaces that can be used for several activities which act as point of attraction of the area, with particular attention to the connection between the built-up area and the green area.

Within the park there are a few one-floor buildings which house some services relating to the green areas: an eco-volunteers main office, two semi-covered resting areas and a bike-sharing centre. The park is divided into a more naturalistic wooden area towards the border with Avio, and a more designed intermediate area to conclude with the condominium private areas. The side on via Carignano consists of seven five-floor buildings, for a total area of 30.675 m<sup>2</sup> (four in private housing and three in social housing) which protects the park and its bicycle and pedestrian tracks from the driveway. In the southern part of the park there is a last two-floor building which houses a multifunctional centre. The residential buildings are linked by a covered shopping area which runs parallel to via Carignano.



Standard building facing the park



Bike sharing centre

Regarding the energy saving issue in compliance to the law decree # 311 of 2006 we tried to limit the thermal bridges and to minimize the building envelope thermal dispersion within the established parameters. This result has been achieved through an exterior insulation finishing system of the façade, emission-free insulating glasses and honeycomb bricks.

Furthermore we planned a photovoltaic system and a sanitary system for supply of hot water.

For our plan we chose a 105 m<sup>2</sup> area of solar thermal collectors which can guarantee about 60% of sanitary hot water to the building (as required by the local law # 13 of 2007) with reference to the daily per capite consumption of 70 l. This system can be covered thanks to the state subsidies in about 9 years.

Regarding the photovoltaic system we chose a crystalline silicon photovoltaic panel (about 90 m<sup>2</sup> total surface) which guarantees to satisfy a 36% of the electricity required, estimated in about 35 kWh/m<sup>2</sup>, whose cost can be covered in 10 years.

Lastly we analysed the energy saving due to the south oriented verandas alongside the living areas of the flats. We used Bestclass and Designbuilder software to estimate the gas consumption saving during the winter thanks to the verandas, and it has emerged a 15% average seasonal saving for the building.

Thanks to the devices used to plan the veranda, for example a 66% opening of the glazed surface, the presence on the outside of a darkening curtain and the choice of a double aspect living room, it does not run the risk of high temperature during the summer, whereas it accumulates a good quantity of heat during the winter.

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