



CASE
STUDY

Case Study



Clean Energy

Grenoble, France - Revitalization of Unutilized Military Barracks “ZAC de Bonne”

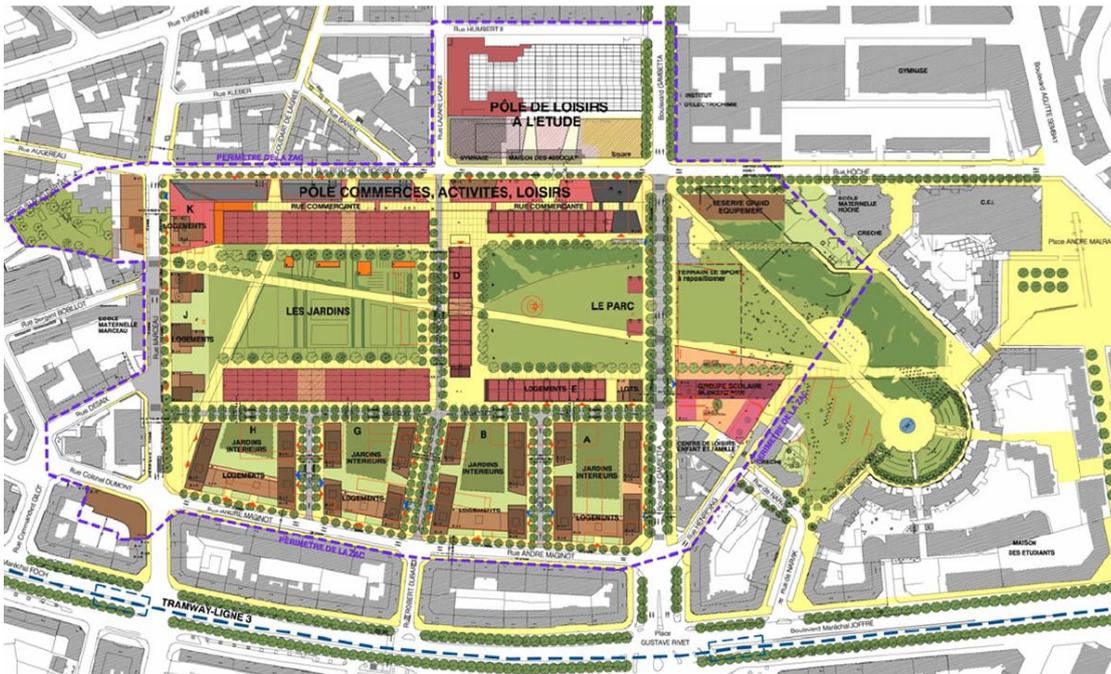
Situated in the South-East of France and surrounded by mountains, Grenoble’s climate has extensive thermal amplitudes and high insolation as well. Average heating degree days are approximately 2.500 per year. The municipality proper has 156.000 inhabitants. The de Bonne Zone d’Aménagement Concerté (ZAC) is an eco-neighborhood in Grenoble built on 8.5 hectares of land previously occupied by army barracks. The area is situated near the city center and will in total provide for 850 apartments. In the context of the development the existing building stock was revitalized and new buildings with high energy efficiency standard were built with a total primary energy need below 50 kWh/(m²/a). In addition to the major objective of an increased energy performance in comparison to national legislation, passive solar gains had to be optimized in order to limit overheating during summer and enable the use of solar gains in winter. Use of recyclable materials was promoted throughout the whole project. A first application of a positive energy office building (positive energy balance and on-site generation of energy if measured over the year) was also implemented in the de Bonne district.

Unutilized Military Baracks “ZAC de Bonne”



Source: <http://observatoire.pcet-ademe.fr/action/fiche/36/amenagement-de-la-zac-de-bonne>

Mixed landuse for refurbishment of Military Baracks “ZAC de Bonne”



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Overall the measures taken to increase building energy efficiency included compactness of buildings, reduction of thermal bridges, external isolation and mechanical ventilation systems with heat recovery. Concerning the use of renewable energy a central photovoltaic plant with 1000 m² surface on top of the district's commercial center was established and 8 micro-cogeneration plants were installed. The engagement of all actors was formalized in a Charta (declaration of commit-

ment) for high environmental quality (“charte haute qualité environnementale”) that was signed by the construction companies and developers to ensure compliance after sales. In addition to general development planning documents tender documents for high environmental quality were developed and applied throughout the project. To ensure a high construction quality on all levels training modules for the diffusion of new construction technologies and their application were developed. While no overall monitoring scheme was implemented the measurement of energy consumption was offered to the inhabitants on a voluntary basis. Large part of the financing was accomplished through land sales by the city to private property developers. The ZAC de Bonne project has participated in the European CONCERTO programme.

References

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Credentials

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