



# TASTING THE LANDSCAPE

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# Urban Regeneration. The Application of an Environmental Index for the Improvement of Urban Well-Being in an Industrial Area of Modena

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Note: The research study, also subject of an undergraduate thesis, is being evaluated by the City Council

Urban regeneration is an operation of sustainability that must start from the identity of the place. Elements that can play a fundamental role in the requalification and regeneration of our cities regard both the adoption of innovative urban and environmental policies and the application of technologies and design solutions that increase the sustainability and environmental well-being. To this end, an environmental index was identified that is able to reduce the construction impact and at the same time promote green in urban areas. This index was applied on an experimental basis to one of the most densely built areas in Modena: the industrial area Villaggio Artigiano constructed in the 50s, a place that represented for the city the powerhouse of wealth and well-being and today is a place which has a strong identity and social value.

The research study started by a deep analysis of the most significant environmental indexes (*R.I.E. "Riduzione dell'Impatto Edilizio" - "Reduction in Construction Impact"* / *B.A.F. "Biotope Area Factor" / G.S.F. "Green Space Factor" / S.G.F. "Seattle Green Factor" / ...*) that led to the identification of the index considered most appropriate to the scenario of the Villaggio Artigiano; the choice was that of the B.A.F. (as proposed by the Institute of Agronomist and Forestry Professionals of Modena), but amended and adapted to the requirements and characteristics of the specific industrial area in Modena. In fact, it is a urban index that is able to stress the relationship between the ecologically useful surface area ("ecological value") of the lot and the area of the whole lot. An abacus was, therefore, worked up and the index applied to all 126 lots in the Villaggio Artigiano.

The study made use of experiments, also with physical measurements, made by public entities mainly aimed, above all, at reducing the heat island effect.

The motives that led to the determination of this urban index are mainly the following: the possibility of having available an efficacious tool for environmental mitigation and balance, the improvement in living spaces and economic benefit from energy savings. Building conversions aimed at improving measurably the environment are connected to a system of rewards that is proportionate to the environmental benefit obtained; procedural incentives, both economic and construction, are assigned to the achievement of certain performance thresholds. Additional rewards can be provided for interventions that seek to create connections within the blocks in order to increase the permeability of the urban fabric. In the application of the algorithm, the use of traditional green and permeable surfaces put first whilst, for eco-tech green, the use of green roof, was favored over that of green wall for the most environmental benefits it produces.

In this general framework, mitigation solutions have been identified with effects of improving the technical parameters of the built environment which also contribute in the broad sense to the evolution of the urban landscape by opening new design viewpoints: enhancement of the existing "empty spaces" and outdoor areas for introducing green facades, with the purpose of structuring of external spaces; introduction of discontinuous and permeable surfaces; increase and realization of the traditional green and eco-tech green (adoption of an ad-hoc regulatory plan).

Finally, the consideration of private green and public spaces in a single systematic composition is essential to restore a progressive urban landscape, where the exterior spaces become indispensable added value and result the place of a renewed social dynamism.

Useful environmental mitigation and balance tools are the integrated application of technologies for the management and recovery of rainwater with the realisation of green surfaces (roof gardens, green-walls and traditional green), as well as interventions in low CO<sub>2</sub> emissions and resilient to climate change. In the end, abaci (specific to the industrial area in question) were finally drawn up for the various solutions to be adopted whilst leaving total freedom to the professional regarding the intervention methods and techniques that satisfy environmental index. Regenerate signifies not only giving perceptive, residential and industrial dimensions that allow a higher quality of life on the strength of society's desires but also adopt procedures and solutions for a true improvement in the environment.



1. Simulation environment and application of the index of the productive area of the Villaggio Artigiano - central area