



POLITECNICO  
DI TORINO

# Honors thesis

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COURSE OF  
MASTER SCIENCE  
IN SUSTAINABLE ARCHITECTURE

*Abstract*

**Disciplining Sustainability. Proposals for the new building  
code of Lecce**

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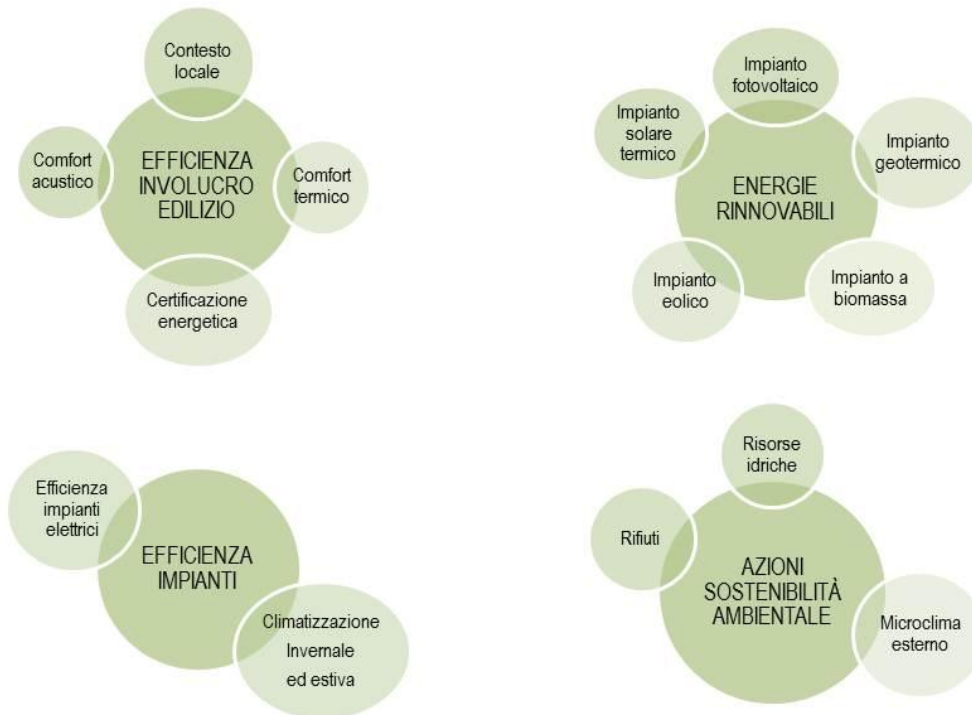
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In the twenty-first century the main strategies and policies of the government are: focusing on issues such as climate change, the management of energy resources, and the reduction of CO<sub>2</sub> emissions. Undoubtedly, cities are at the heart of these events. In an ordinary city urban planning and ecology are now inseparable: both contribute to the creation of a sustainable and efficient city that is capable of managing its natural resources and minimizing environmental impacts. The construction sector appears to be one of the main culprits for CO<sub>2</sub> emissions in the atmosphere, and measures must be taken to prevent the environmental catastrophe that we are witnessing on a daily basis. The main regulatory tool at local government level which can implement the construction of buildings in compliance with the principles of bio-architecture is the *Regolamento Edilizio Comunale*. Until a few years ago this tool was prescriptive and directed projects with the sole aim of ensuring that size limits were complied with; now, however, it introduces innovative design criteria and defines energy and environmental goals by imposing minimum performance requirements. As a result of this process of innovation which continues to influence policies and urban planning and the continuous renewal of the instruments adopted by government and the building industry, this thesis also aims to propose a tool for analysis and evaluation which can be valid on a national level, and which represents a model and a reference for the process of revision and updating of the *Regolamento edilizio* which is concerned with environmental issues.

This instrument is configured as a real checklist and its purpose is to guide designers and technicians in preparing the new *Regolamento edilizio*, allowing them to intervene quickly and efficiently. The Checklist has two functions: it identifies the parameters for green design that are missing from a building code, it ensures that they are then integrated, and furthermore, it establishes a methodology for assessing the level of sustainability achieved by the planning instrument( low, medium or high sustainability), which is based on the number of parameters it contains. Each parameter is assigned a specific score as determined by appropriate assessment frameworks. The parameters which are identified by the checklist cover four areas: building energy efficiency, the efficiency of its systems, the use of renewable energy sources, and actions for environmental sustainability. For each of these areas, there are themes which are studied more in depth and which concern sustainable building, for which minimum requirements and types of intervention are established.

## Regolamento Edilizio Comunale per l'efficienza energetica



To test its applicability, the model checklist which is described here was applied for the first time on an experimental basis to the *Regolamento edilizio* of the city of Lecce. At the end of the work, an integration document was written to the Building Regulations in force, the so-called Annex Municipal Energy. Such experimentation along with the introduction of the parameters identified by the means of the Checklist has led to the creation of a new *Regolamento edilizio* for the city that will meet a high level of sustainability, contemplating the largest number of parameters of bio-building listed by the checklist. In conclusion, on the basis of the path followed in the preparation of this thesis, it can be said that the *Regolamento edilizio* is undoubtedly one of the instruments which allows one to re-evaluate the concept of the contemporary city in an innovative way, with the introduction of energy-environmental policies and objectives aimed at improving the quality of life.

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