

POLYTECHNIC OF TORINO
FACULTY OF ARCHITECTURE 1
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Honors theses

Public lighting system and sustainability: definition of an approach to appraisal and application to a study case

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First and more common definition of sustainability is contained in the relationship introduced in the 1987 from the Brundtland Commission to the Conference of the United States for the Environment and the Development. To illuminate a city wants to think of its nocturnal identities that sum to that architectonic one; it means therefore to attribute to the city values like emergency, expressiveness and acceptance, but also to realize an immense and complex metropolitan landscape that constitutes one new dimension of the city life. Sustainability and public lighting system are two arguments go to you that difficultly they are felt to name together. In the last years it is being only attempted to awaken the public opinion and the employees on the fact that can be conjugated.



First part of the thesis has been structured so as to be able to understand what s' it means for sustainability, which are the several meanings of the term and like it can be applied in the truth of a plan. It comes therefore analyzed to the public lighting system with its characteristics and its functions in the city within in order to comprise later on as this relationships to the sustainability gets used them. Thematic under which all are concentrated the aspects and second which have been structured the part analytics of the thesis are essentially five:

- Requirements and performances of the service of public lighting system
- Light Pollution
- Polluting consumptions of energy and resources and emissions
- Recycling of the parts of the systems
- Management and relative costs



Light pollution

In the final part of the thesis it is gone to determine an approach to the appraisal of the sustainability is of the existing systems that still in phase of planning. The attempt is that one to define the structure of an appraisal method, without having the pretension to supply a procedure that you carry to a final judgment, but that it indicates however the just road for being able to obtain it. In order to reach our objective it has been useful to analyze the main recognized methods to score to international level, in particular some analogies between the thematic ones analyzed in the Green Building Tool and those regarding have been found the systems of public lighting system. On the base of these considerations one has been proposed structure articulated on more levels, composed gives: aspects, categories, parameters and terms. The aspects are consider you as great sections placed to the first level of the system that group the main topics acclimatize them study object and they are subdivided in:

- Consumption of resources
- Environmental weights
- Quality of the luminous atmosphere
- Economic aspects and management

The *categories* are criteria in order to analyze to the *aspects* to the inside which are gone to characterize possible terms of appraisal that to second of their nature they are defined like:

parameters if the appraisal that they offer is of quantitative type, that is expressed through a number;

terms if they presuppose an appraisal of qualitative type, turn therefore to numerically express the contribution of procedures, adopted political or not valued aspects.

The validity of the proposal comes finally verified applying our method to a study case: the systems of the city of Ivrea.

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