ABSTRACT

Title: Comparative study on typologies of development applicable to low density estates.

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Along the second half of the 20th century, many uncontrolled low-populated urbanizations developed in the area of Barcelona, lacking any kind of planning. Nowadays, the problem arises while trying to mend these deficiencies, with the need to compromise between a quality urbanisation and an adjusted budget and an expected maintenance cost not matching those of high density populated areas. Owing to this unfinished design, these developments offer the chance to apply new alternative sections, matching the needs and possibilities of low density urbanisations. This study departs from this will to redesign, hardly affordable in urban centres.

From this starting point, but far from merely presenting a section catalogue, this study focuses on establishing design criteria, a method to value the alternative solutions, in order to discriminate those ideas up brought by experience and intuition. According to this target, three main works configure the body of this study. The basis is a state of the art of the main urbanisation tools, with a research to assign standard values to each of them. This is followed by the creation of a protocol to grade the development proposals, applying to each specific case. Finally, summarising the acquired knowledge, and by means of the fore mentioned protocol, some optimised innovative road sections are presented.

To sum up, the first explanatory chapters consist of a selection of the alternative solutions for each system –i.e.: pavement, sewers, public services networks, street lighting and other public services-, with the sole limit of applying regulations. Besides, the main parameters of the urbanisations are chosen, to match them with the alternative solutions as additional criteria. The final objective is to establish ordered values for every alternative in three main ranges: construction cost, maintenance cost and environmental cost; in order to conduct a cross sectional study, which is hardly found in development projects.

In a second phase, once the value method for each system is settled, the study affords the design of a more thorough method, able to analyse each development proposal as a whole. Departing from the appliance of the obtained results for every system, and also on the needs of every particular case of study which are noted by filling a form, the algorithm foresees the urbanisation costs and assigns a mark to the project. This system, widely open to the improvements that the future might bring in terms of new materials and solutions, has the goal to show the costs of development in a graphical manner, conferring a potential use as high range decision tool to the designed procedure. The implementation of the method is shown by means of an example, corresponding to the “Masia del Solà” estate in Monistrol de Calders, Barcelona.

Finally, the protocol is used in its most abstract form, to create an estate road section catalogue, with intended appliance in low density populated areas. Far from willing to transcend, this catalogue has the purpose to definitely show the possibilities of the created tools, by upbring some innovative ideas, and as a proof of the benefits of the cross section analysis that this dissertation has defended.