

Influences of 3D visualization during the design process in architecture

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Abstract:

The objective of this research work realized in collaboration of CAD Research Group (GRCAO) of the University of Montreal, is to put forward the usage of the perspective and 3D visualisation in architecture by the introduction of digital technologies, as participative means for the decision-making during the architectural design process.

To transcribe his/her knowledge, the designer composes visualizes and deduces his/her decisions. Each action is thus generated according to the choice that he undertakes to fashion the architectural model. The purpose of this research is directed particularly upon this phase: at the moment of decision-making. We will propose an application, developing a partnership between the designer, physical models and the computer-tool, noting its influences during the development of the design process and evaluating every action and the results of each variable. Therefore, we will realize a case of study on summer lake residence (Lac St-Joseph, Quebec), designed in the studio Charles-Bernard Gagnon Building Workshop Inc. (CGBW).

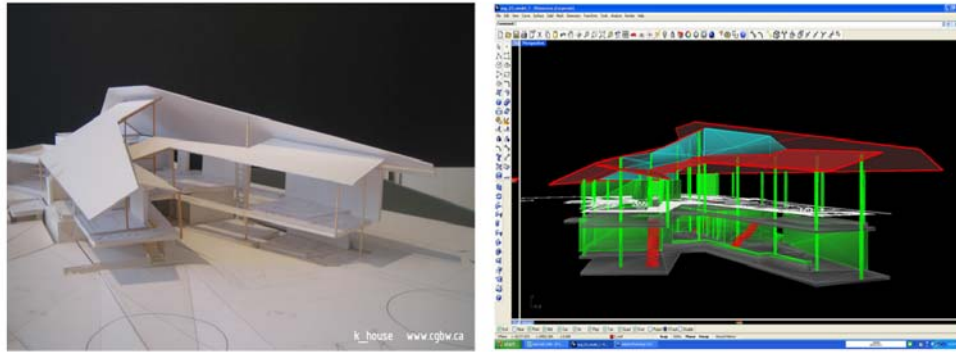
The review of literatures and the exploration of the representation techniques and the technique of visualization of architectural "Space", allows us to distinguish to what point the implication of such partnership is engaged. In our postulates, the 3D visualisation generates an influence in the decision-making during the architectural design, and the elaboration of the architectural design with the assistance of CAD systems, is impregnated by a sequential and progressive process during its development.

The architectural design is a complex activity, since it is related to several factors. However in the present research, we approach the problem of design under another sight, by raising the question of digital media and the exploration of the form and architectural space using these tools.

The digital tools open new fields and broad possibilities in form and space creation and in the exploration of the design by means of the new media that can lead to particular architectural expressions, and to generate new solutions as regards space design.

The recent innovations as regards digital technologies have created new opportunities which imply a change in our way of seeing, creating and conceiving in the architectural field.

Key-words: Perspective, 3D visualisation, architectural design, decision making, 3D modeling, physical model.



Pictures: K-House project (Quebec, Canada), 3D design process studies from July 2006 to August 2007 (CGBW Inc.)

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