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CAD the Tool

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What is the role of CAAD as a tool of architectural form creation ?

We used to over-estimate the role of computer as significant factor of design process. In fact it serves only to produce technical documentation and to visualise designed buildings. We usually use CAAD to record ideas, not to create designs. We use it like more complex pencil. But it is unsuitable for conceptual design , with imperceptible influence on idea definition. Its practical usefulness is limited. I would like to consider and find out reasons of that state, present some conclusions and ideas on computer aided architectural form creation.

Many tools were invented to extend possibilities of human body or intellect. Microscop and telescop are extensions of human eye. Which organ is extended by computer (especially by CAAD)? CAAD with high developed function of visualising of the object being designed seems to be an extension of architect's imagination. It is being used to foresee visual effects, to check designed forms, to see something what we are not able to imagine. It performs the role of electronic modeler. Real model and virtual model - the medium of presentation is different but ways of using them are similar . Dislocation of place where we build model is not a big achievement, but potential possibilities of CAAD in modeling are almost unlimited (?).

What are special features of CAAD as a modeling tool?

First we have to consider what is indispensable when building a model: to embody idea. To do this we need space, substance and tools. In architectural design practice space is a real site with definite climate, neighbourhood, orientation. Substance that we shape is an architectural form composed of many different elements: walls, windows, roof, entry, ... , proportions, rhythm, emotions, impressions... The tool is: our knowledge, imagination, talent, experience, norms, law and drawing equipment. Working with the computer, making virtual model, we have many of mentioned elements given in structure of CAAD program and interpreted by it. But many of them have different character.

Making traditional dummy of building we operate on reality which is manually accessible. In case of computer model we operate on information. Space, substance and tool (- program) are informations, data. Human being is not an abstract data processor, but creature that lives non stop in close, direct, sensual contact with nature. By this contact with environment collects experiences. Computer can operate on digital data that is optionally selected and given by user, independent upon environmental conditions. Usually architecture was created on basis of environment, climate, gravity. But these do not exist in CAAD programs or exist in the symbolic form. Character of these conditions is not obvious. We can watch demeanour of objects in gravity but it can be also antigravity. In theory of systems everything is considered as a part of bigger system. In "virtual" reality (in computer space) we deal with occurrences which are reduced to abstract level, free upon terms or connections. We work with our CAAD software using geometric space without any other principle.

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