

## ***CAAD AND NETWORK TECHNOLOGIES - Reflexions from education and practice***

Igor KOSCO, Arch.Eng.PhD.

Department of Computer Aided Architectural Design (DCAAD)

Faculty of Architecture,

Slovak Technical University,

Nam.Slobody 19,

812 45 Bratislava,

SLOVAKIA

Tel.: ++421.7.321 609

++421.7.5396 338

Fax.: ++421.7.335 158

email : [kosco@dcaad.fa.stuba.sk](mailto:kosco@dcaad.fa.stuba.sk)

**KEYWORDS:** remote communication & collaboration, internet, network, videoconference, architectural, urban and landscape designs, project management

**OBJECTIVES:** collaboration, shared and distributed design (modeling) collaborative and remote teamwork, electronics design studio interactive and distance learning, relationships between education and practice, European (global) cooperation in research and education

### **ABSTRACT**

New technologies like Computer Aided Design and network facilities are affecting the building procurement, design and construction processes very rapidly. Network technologies are giving us a variety of possibilities : quick and simple access to information, quick and easy communication, exchange of datas in different formats ( texts, datas, drawings, images, animations, hypertext or multimedia products, etc.) or access to differently located computer and work on it. As the result the communication or collaboration in a design and construction process and management could be used not only at the Level 1. (in one office), Level 2. (between different offices) or Level 3. (different participants and users) but, what is more important, between geographically dispersed members of design and construction teams (dispersed offices or communities in different places, towns, regions, countries or even continents). There are a lot of advantages : quick and easy communication and exchange of information, free choice of a team, easy revisions of a documentation, collaborative work on the same drawings, costs savings in travelling, issuing, copying and shipping of a documentation and finally possible use of the cheaper labour or more skilled professionals in a different region or country.

### **LEVEL 1 : Collaboration in a office**

Computer Aided Design as a base for collaboration in design process. This enables architects and engineers to simplify collaboration on all drawings necessary for the

building procurement. The connection between architectural or landscape design, structural design and services is very close, clear and exact, all consultants might work on the same problem or drawing at the same time. CAD drawings might include all professions in one drawing (conceptual evaluation) or split them if necessary. It is possible to use variation of standards or notation in different languages (e.g. for a design problem in a foreign country). It is easy to archive or to transport them.

### **LEVEL 2 : Communication and collaboration between several offices or experts**

The design process and building procurement of a huge or complicated investment usually needs the collaboration of larger numbers of professionally differently orientated offices. The computer aided design process enables their collaboration and exchange of data. It is possible to work on a big building complex design based on a reference connection of a number of drawings (buildings or parts of the complex) finally jointed into one at the project manager office. The advantage is accuracy, simple exchange of data information and continuous revisions according to the project evolution. The next advantage of such a method is one set of currently revised data at the end of each day.

### **LEVEL 3 : Communication between designer, public, administration and community**

Urban, town planning and landscape design are the areas which need communication, evaluation and verification between designer with his team of specialists, inhabitants, public and area (zone, district, town, etc.) administration or management. If such documents are prepared in a digital form as a result of CAD technologies they can be very successfully used for the communication, presentation of the idea, evaluation and eventual revision of the design. They can be prepared with much more detailed information and related to database systems. A three dimensional model could be prepared for the verification and for the clear presentation of important areas (e.g. historical town centers) . This explains the design very clearly even for the non-professional public. Finally, the area management and administration will deal with complete information which could be continuously evaluated, revised and kept in a "live" and current position.

Most important results will be reflected by the experiences IN CAAD AND NETWORK TECHNOLOGIES:

- Architectural and urban design using 3D modeling, visualization, animation and multimedia presentation (collaboration and verification) - "Novy Jicin Town Plan", Czech republic, 1995
- A Joint Educational Design Project BRAGALU (Bratislava-Graz-Luton) - an international collaborative student design work via INTERNET - "Bailey Water Tower Conversion", Luton, U.K, 1995
- A Joint Design Studies Project BRAGRALUWI (Bratislava-Graz-Luton-Wien) - an international collaborative student design work via INTERNET - "Gasometers Conversion", Vienna-Simmering, Austria, 1996
- "TATRA-THERMAL Healing Complex" (thermal water spa), High Tatras, a

collaborative remote design team work, building procurement and project management, Slovakia, 1996-97

- The new "Residence of the British Ambassador in Bratislava", a collaborative remote team work, building procurement, project management and realization processus, London - Bratislava, 1995-1997

### **CONCLUSION:**

The teamwork over spatial distance has become an actual, basic requirement not only in research and education but as well in the practical work. Although the results are not co-herent and sometimes differ from what we have expected it has taken its place in the daily life. The very important role of research to find or to advance methods and technologies of education to prepare future users and practice to reflect knowledge and experiences and to restart the whole process in view of the new quality.