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**Building a New World?**

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## The Lame Conductor

The profession of architects has long tradition from the ancient times. During the centuries the function has changed from the trustee of the king to a rusted bureaucrat. But why has the role of the architect changed permanently? Being aware of this fact, we have to analyze the role of the architect in the construction procedure.

As it is known from the RIBA report 2000, ("architects and the changing construction industry") architects have lost their traditional role in the construction procedure: comparing to the 1980's, when more than 70% of the constructions were developed traditionally by architects, this rate was less than 40% in 1998.

In the public sphere price competition is dominant, and the obligatory public procurement killed the trustee relationship between the architect and the investor.

If nothing else, this fact should be analyzed in a general survey. What happened, what has changed so rapidly, why are architects unable to control the construction procedure?

It makes us to think about the redefinition of our profession; who are we and what is our purpose? What is our added value, what stimulates society to use our services, instead of taking the interest of the developer or construction companies?

Designer architects are the new actors in this play, who are responsible for publicity, form, advertisement and show. Yet the civil engineering society forces our profession into the role of decorators. If we accept this new position, we could become the simple contacts between the investors and the authorities, who are allowed only to manage the building permit, and be responsible for the façade colouring.

The growing market of ready-made houses (Fertighauser) offers a wide variety of design program for individuals. "I can do it myself, why shall I employ an architect?". The enormous amount of materials, the financial tricks of the construction companies made our professions uncertain. Do we have any certain and exact knowledge? Building material producers have such a chemical knowledge, that we can not be competitive any more (let's think about the thousands of new plastic materials in the field of insulations). We can't even give up to date financial advises to the investors as banks have better services.

The British architects were indignant at the comparison of construction activity in car manufacturing and also at the suggestion to use a similar method to theirs. (Who on earth knows the name of the designer of Toyota Avensis or Ford Mondeo, or has anyone heard about the designer of the space shuttle Columbia?)

I understand the indignation, I believe there is some truth in it.

In the car factory, workers (robots) are responsible for making different products, which finally come out as a car. The largest manufacturers use the same types of brakes and all of them use the same type of shock-absorber. All these are only products, which are produced and assembled on certain plans influenced by the customers, who decide the type of the upholstery, the engine, the climate system and all other parameters for their comfort. At least there is an illusion, that customer is involved in the design process of the car.

Let us not over view the strict rules of mass production. Industrialization is not a good or a bad thing; it is a matter of fact, and it will work out his own remedy. At the same time there is a growing demand for individual clothes, houses, as people

want to be independent from the mass production, too.

It is hard to argue with the mass production. Why is that so obvious that the investor negotiates with the financial manager, the contractor, and at last with the architect?

The civil engineers answered this question in a very practical way. All measurable activities have been regulated on the basis of quantity, and they play the role of regulation controllers.

No one doubts the calculation of the statical engineer for the reinforced concrete column section because it is based on approved professional regulations. Inviolable rules and regulations protect the fire security, the acoustic planning and the building physics. All measurable components of the construction belong to the territory of the civil engineers, we can only argue with some remaining functional conventions.

It seems that our profession hasn't got its own rules because it connects to such dubious ideas as the environmental quality.

What is my suggestion? The architects should take their part in technical, financial procedure of the construction.

## **How do we Learn?**

It is necessary to analyze at least some of the fundamental questions of human thinking. Here there are the same different types of approaches as previously mentioned: the analytical method of the European societies and the holistic method of the eastern societies. I feel a lot of similarity in the way of the construction and in the language. Grammar of the language is the way of the construction, and it is reflected in every small details of life.

The starting point of the survey is that fact that human can recognize and use no more than 50-80000 schemes and this is a general observation from chess masters to botanical experts. I will explain the different steps of problem solving activities, and I will prove, that the commonly used methods of iteration, dialog, brain storming, analysis, and morphologic boxes are important during the process but not obligate elements in the problem solving. Construction teachers often face the problem of complexity. How is it possible to find adequate answers to a construction problem, if thousands of firms offer thousands of solutions on the internet? It is slightly impossible even for experts to follow the technological development in the industry - let's think of the various materials and chemicals used by the flat roof manufacturer. How is it possible to stop the so called "paste-copy" method at a construction drawing?

Let us imagine the situation when we learn chess from a book and we don't use the board and pieces or learn how to swim without a swimming pool, or learn music without sound. Most of what we thoroughly know has been learnt by observation, trial and error, and exactly this is the case with our construction education.

At the beginning of our profession architects could touch and smell all building materials and all material features. If we touched all construction materials nowadays, the whole procedure would last over one year even if we didn't touch one piece longer than 10 seconds! This shows the absurdity of the wish to know all the infor-

mation about construction materials.

Let's have a look, how other professions react to the fact that they have to deal with huge amount of information. As an example we can take the clinical diagnostic problems of the doctors. The first problem is that the definition of the problem requires more information than initially available. Here we have to refer to the problem of the architectural education, where we speak about walls, stairs, foundations, but there is not enough information about the whole building, and the student can not put his new knowledge into the "net of experiences".

Going back to our original medical example, the problem changes immediately after receiving new information. We have the same experience in our professional field where new and newer information appeal from the client and the contractor and these information continuously modify the plan. We have to state, that our systems are not only complex, but they are permanently changing complex systems. Still we have to make decisions even though we know that our knowledge is not enough. The decision making without certain theoretical fundamentals is similar to the politician's habit, which is ready to decide immediately and find the arguments afterwards.

What could give some hope in this hopeless situation? The fact that the information is not everything! It's not the amount of knowledge that differentiates an expert from a novice, but the richness of the connections among the pieces of information. The richness of the interconnections makes the information more useable (e.g., recognition of those situations in which the given information can be used) and more accessible. There is a chance to find good solutions when we utilize our experience, the network of knowledge. The other method is that we work in team, and each member of the team gives their input to unfold the problem.

## Education Methods in the Building Construction

There are basically two general teaching methods in the building construction education. One of them is the traditional method of the induction, where the separated building components are listed and grouped as foundation, walls, slabs, roofs, windows, etc. This method shows all possible solutions of the construction component, as an encyclopedia.

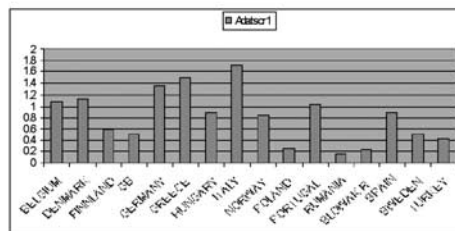
The other method of construction teaching is the deductive one. In this method the teacher explains the specialized building component and the reason of the cho-

### WHO IS AN ARCHITECT??



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### NUMBER OF ARCHITECTS IN EUROPE/1000 INHABITANT



sen solution to the students through the analysis of a given complete building. Here is the general method, to analyse the effects which resulted this solution. Effect analyzing is very useful, and gives the students much more general information than the simple listing of construction methods.

The building construction education has been based on written and drawn materials in the last fifty years. My survey on the number of pages and drawings in the building construction books proved that the basic sources for this field are rich in Hungary. Professor Gábor and his department published a four volumes serial, which contains more than 1000 sheets and 5000 drawings! Just from the point of view of information mass it is still one of the most completed editions in our professional record. Through the analysis of these books we can see that the information amount is permanently increasing. More and more books are published for different building components, or construction problems. One of the typical method for grouping is developed on the basis of the construction materials, (books about brick, steal, wooden and glass constructions) the other grouping method is developed on the basis of the building components like windows, roofs, staircases, etc.

The third type of the construction books is based on the architectural products, where the building is being analyzed in detail as a product. The newspaper DETAIL is a good example for this attitude, which is very close to the architects.

There is a fourth way as well, which is very effective, but it's a time consuming and expensive method: building a 1:1 model. Only a few institutions could afford to use this educational tool, which is much more effective, than any other method. Our professional field is based on materials, what else could be an effective method of construction education if not the real construction practice?

### Detail or/and Whole?

The product designer – who is a new and important actor in the mass-production society- is interested to fulfill the needs of the clients. Where are the borders of the profession, when no experts are responsible for the whole process, but all of them are responsible for their own professional details? This fact makes us to rethink of our profession, and naturally the education process, too. One possible solution is to refer to the standards, and this is exactly the way that civil engineers follow. Architects could not work out their own methods to help themselves in functional and

#### HOW WE RECOGNISE?



GARRI KASPAROV  
can identify 70.000  
chess plays

The best  
entomologist can  
distinguish  
70.000 insects



The best architect  
can use 70.000  
details

#### THE ARCHITECT AS A CONDUCTOR



technical issues. In our profession one of the main values is freedom, and any kind of regulation could destroy this. Still I believe that in general cases standards navigate us in everyday problems, and only extreme cases are exceptions. The civil engineers made a clear decision: they have professional rules for almost everything. When a civil engineer declares a verdict about the size of a column, no one dares to question his opinion. When architects try to argue about a different size/ form/ material of column, the real argument can be either defined on natural law, or on the belief of the competency of the architect. If the client does not trust in the architect any more, and it is clear that only pure financial or/and natural rules have relevance, than our profession should analyse the problems and changes of the last twenty years.

I have more and more the impression, that our professional practice of building different products together has created a bad image and an uncertainty. We can not have enough (if any) information about most of the materials, and even less about the products themselves. We can see the same sort of problem when the ship designer rigs up a cruiser from separate items without having any exact professional knowledge about the details of the engine or the air condition system . A conductor is generally able to play on at least two or three instruments, otherwise he cannot be a good conductor. Even the orchestra is with its 50-80 members transparent. How could the conductor be in a leading position, when the orchestra has several hundred members, and he can play only one or two instruments? How can an architect be a reliable advisory person in a procedure, when he is uncertain in most of the issues?

As a summary of my proposal here are the conclusions I made:

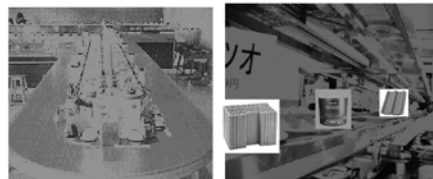
- If everything is fragmented, who is responsible for the whole?
- No one is able to use all materials and constructions
- We have to learn handling complex systems
- Cooperation is the only way to handle sophisticated matters
- Not the amount of knowledge that differentiates an expert from a novice, but the richness of the connections among the pieces of information
- We have to learn again how to deal with money

#### BUILDING CONSTRUCTION BOOKS REVIEW

¥ AMAZON.COM 14.527 BOOKS FOR THE SEARCH ' BUILDING CONSTRUCTION'

AUTHOR	TITLE	YEAR	PAGE	DRAWINGS
OLSON	FFY LETSBEREZZITAN	1984	1200	500
MITCHELL	ELEMENTARY BUILDING CONSTRUCTION	1984	300	500
SEZILL	MAGAS PIRIFETAN	1987	800	1000
JANARDILHA, BISHA	BUILDING CONSTRUCTION	1987	500	600
SEFFER	MAGAS PIRIFETAN	1989	410	420
DEBIS, HEMING	BRACHENFUTIKTION	1989	720	1200
SCHMITT-HEBDE	HOCHBAUENFUTIKTION	1989	700	3000
FROCH-AL, LL	BRACHENFUTIKTION	1989	1000	1000
CZECHOSL	BRACHENFUTIKTION	1987	500	900
CHAD	BUILDING CONSTRUCTION ILLUSTRATED	1988	400	1000
DEPLAZI	CONSTRUCTIVE ARCHITECTURE	2005	500	1200

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