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SEARCHING THE ARCHITECT'S GREEN HEART – NEW TECHNICAL PARADIGM OR RESPONSIBLE PUBLIC THINKING

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Abstract

Is it possible to think globally and act locally? We have to point out, that the built environment is a great spiritual and material treasure. The knowledge of architectural history, art, philosophy and the abstract work of engineers is the way we have to follow. But an even more precious treasure is natural environment which we have to learn again to respect and honor. We have to take into account natural resources and landscape, and our work in the field of built environment has to focus on the natural and social aspects for long time. Probably this is the most important lesson in higher education, beside the technical knowledge. The knowledge of Past and Roots, enhanced by current Craftsmanship to create home for the next generations in our Globe.

Keywords: architecture, green design, social impact, cultural heritage, higher education.

1. Introduction

"With all architects, caring should be a moral imperative."
Fay Jones, American architect, [1].

Is it possible to think globally and act locally?

Regarding the above question one can hear unbelievable stories, barbarous methods and as curio good examples of design and building history during conversation with friends and professional partners. Everyone involved in the architectural horror – or from time to time in positive history – can feel, that Hungarian architecture after the technical changes, or rather with parallel to it is at a *moral turning point*.

2. Education as Part of Solution to Help Sustainable Design

Architects and teachers of architecture face tough questions when they try to find the best answers to the emerging challenges. [2]

This is not easy as they are trapped in a double pitfall.

On the one hand: the students of architecture are trained during their long education years (and naturally we were trained in the same way, as we would like to do the same during our tutorial activity) to find different approaches and multilevel solutions. Accordingly, architects and urban designers were taught from urbanism, through landscape architecture to interior design. As a result they acquire a solid base of knowledge which is strengthened by practical experience.

Architectural training has been was focused on finding sound answers from the social – and fortunately nowadays, ecological – aspects, to the very technical details during design and construction work.

Consequently from urban design to ergonometrics, from intellectual product to technical details, from ancient history of architecture to details of reinforced concrete structures, today's students of architecture must be able to understand the issues.

On the other hand: in everyday practice (which resembles a jungle-war, legal-maneuvers rather than a real creative work) architects have to deal with the procurers who behave like employers and expect loyalty even in case of poor projects. Namely the architect is expected to give answers only from the financial capital investment point of view, and all other aspects must be disregarded.

> The architect is expected to forget he has an opinion regarding major issues of the city.
> The architect is expected to forget his own opinion about the urgent problems of the city.
> The architect is expected to forget to solve the problems not as financial-technical matters.
> The architect is expected to resist the temptation to design buildings for more than one generation.
> The architect is expected to 'play tricks' along the way.

All in that the architect must be loyal to his/her commissioner's expectations.

Just the fact that the procurer has the money/site/idea does not mean that the architect must take a backseat. The procurer does' not own the knowledge and competence of an architect, and only rarely owns the real view. Without the architect the commissioner is only a money-bag or a man of ideas. (Everyone knows this, except the procurer.)

And the architects find themselves in a tight corner:

On the one hand he

> wants to use his knowledge
> wants to create
> wants to provide for his family

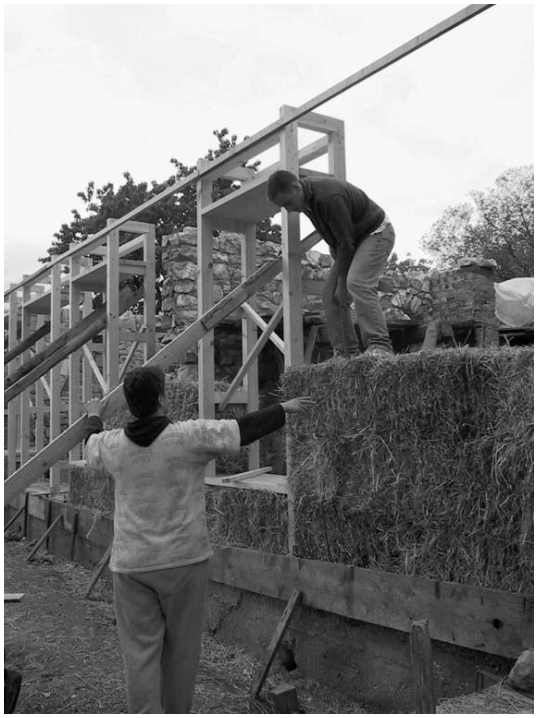

Fig. 1. Experimental work: third year students constructing the first straw-bale building in Hungary, Sárospatak

wants to work on nice projects with his colleagues

On the other hand the architect

does not want to act like stuff in the tender
does not want to plan and build poor buildings
does not want to be a main actor in scandals because of his naivety.

(All of us could easily draw a story with this background).

3. Greens for Future Generations in the Field of Built Environment

The situation however is even more complicated, only green can represent green interests of future generations.

Environmental green interests are represented by small groups which create a network via personal contacts in Hungary. This network works quite effectively since

they spread widely now [3]. How would we know about the Danube bank motorway project (still a plan!) if not from these green groups? How could green organizations challenge the building of NATO locator on the territory of nature reserve in Southern Hungary (Zengő) if not using publicity?

More and more architects active in green associations, increasingly use publicity as a weapon against destructive ad-hoc ideas [4]. While they have no financial capital, they have intellectual capital to protect the interest of future generations. So instead of ad-hoc financial-technological activity, real artwork (which roots in the past) is one of the greatest challenges architects face nowadays [5].

Fortunately there are lot of engineers and architects who take up the challange, not spare their knowledge and spiritual energy and create the best despite the hard circumstances.

4. Higher Education and the Possibilites of Teaching "to be Green"

Those of us, who work in higher education are in a slightly more favourable situation since have opportunity to point out the interest of nature, environment and next generation in our courses. The main part of our work is connected to education. We are surrounded by students who mirror the surrounded world, reflect the good and the bad equally, but they follow us and respect us. We must use this opportunity in the framework of education, and show the environmental and social aspects of the engineering tasks for future engineers.

Hungarian Engineers are not in the position to do their best in the field of technology, but they must take into account the future life and impact of their products and their work [6].

We are aware that time is limited for personal contact, the frame education is tight, students and professors are in mental strain so it is difficult to take a break, take a step back and look into the future.

What is the most important to learn, what is necessary to be in students' mind when professors are not there to be asked? The foundation? Of course, it is important. The roofing? It is important as well, all the technical details are necessary.

But in my opinion the most important thing is the ability to ask, ask themselves, ask the community for whom the building will be built. Money should be among the last questions. But one of the first questions should be asked about the nature of the problems to be solved by the proposed building [7]. Will these problems be solved for a long time? What damage will nature and landscape suffer?

We have to point out, that the built environment is a great spiritual and material treasure [8]. The knowledge of architectural history, art, philosophy and the abstract work of engineers is the way we have to follow. But an even more precious treasure is the natural environment which we have to learn again to respect and honor. We all know what unbelievable damage can cause the flood of Tisza River. But we also know, that buildings could be built within a few years. After the disaster in the

Fig. 2. Secondary school for Environmental studies in Tokaj: green grass roof solving as ecological pahtway to study the native plants

Fig. 3. The appropriate using of local materials: the background dwelling was built using the mud excavated from the nearby road. (Beaten –earth structure). This excavation opened the site, and created a new pathway for the tenants. Rural dwelling in Abaliget shows the good example of contemporary architecture and the tradition of local building history.

Tatra Hills, however there is no miracle to help to renew the forest in a few decades. Nature has self-healing capacity, and will cure the stigmas, but She needs hundreds of years to regain a balance again (or thousand of years in case of a global climate changing).

5. Learning from the Good Tradition: the Lessons of Vernacular Architecture

It is also important to learn from the past. Vernacular architecture has some popular fallacies: 'exotic', 'romantic', 'living tradition', and some more others [9]. It is necessary to emphasize, the vernacular buildings are never self-conscious, they recede into the environment, they are human scale, and the process of building is more important than or equally important as the end product.

There are different explanations, equally important (methodology, evolution, socio-environment, culture, aesthetic). We have to point out for our students the conclusions of the different functions, buildings, materials, forms and sites.

6. Teaching *Product Assessment* for Students of Architecture during the Education Period

The relation between design and ecology is very close, and causes some unexpected complexities. Product Life Cycle Assessment is the evaulation incorporating six ecologically dangerous phases, from the original acqusition of raw materials to the final re-use or recycling and final disposal [10]. Today Life Cycle Assessment is very new in the field of building construction, and needs more time to be tested and studied [11]. But we have to try to introduce to our students the environmental issues as follows:

- The exhaustion of scarce or finite resources
- The production of greenhouse gases
- The production of gases leading to ozone depletion
- The production of acid rain
- Habitat destruction and species extinctions
- Materials or processes that harm plants, animals and humans
- Air, soil and water pollution
- Noise pollution with its deleterious effect on the human psyche
- Visual pollution

All the issues listed above have connection to the building industry: the energy we use, the materials we choose, the way we build [12].

The students also need wider picture about the sustainable cities and development of the settlements. We have to focus on the ten key points of EU eco-cities:

- Resource budgeting
- Energy conservation and efficiency
- Renewable energy technology
- Long-lasting building structures
- Proximity between home and work
- Efficient public transport systems
- Waste reduction and recycling
- Organic waste composting
- Circular city metabolism
- Supply of staple foods from local sources

All the key points described earlier helps us creating better built environment.

7. Conclusions

"Design can only succeed if guided by an ethical view."
John Vassos, American industrial designer.

Nature and Earth can prevent themselves from our destructing activity, but generations of human beings have to us devastated forests, salinizationed plains as their homes. This means we have to take into account natural resources and landscape, and our work in the field of built environment have to focus on the natural and social aspects for long time.

Probably this is the most important lesson in higher education, beside the technical knowledge.
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