June 21, 2011 (Tuesday) 55th EOQ Congress

CONCURRENT SESSIONS **Tuesday 13:30 – 17:30**
KEMPINSKI HOTEL CORVINUS **Erzsébet tér 7-8, Budapest V.**

SALON REGIOMONTANUS **Tuesday 13:30 – 15:00**

15.1. CORPORATE SOCIAL RESPONSIBILITY AND SUSTAINABLE DEVELOPMENT I.

Session Chair: ***Alexandros Antonaras****, University of Nicosia, Cyprus*

14.30 **Quality Construction, Quality Certification – From the Energetics Development to the Quality of Life**
Károly Matolcsy and Zoltán Budavári, Non-profit Company for Quality Control and Innovation Building, Hungary

Matolcsy, Károly (Hungary)

Dr. Károly Matolcsy was born in 1956. He graduated as an architect in 1981 at TU Budapest, Faculty of Architecture and made a post-graduate course on insulation, waterproofing and acoustics in 1985. He worked as a site manager and R&D engineer in the roofing field in a big contractor enterprise before he joined ÉMI in 1989 as a research fellow. He became the leader of the Building Construction Department in 1997, and became the head of the Division of Research and Business Development in 2006, and scientific director in 2011. He has been teaching building construction at TU Budapest since 1985. His special research field is building envelope systems, besides he engaged with developing tools for sustainable housing. He is involved in several EU projects from 2001. In the 5.th Framework program he was involved in Thematic Network of CRISP, E-CORE, PeBBu (East European Platform leader), and a SAVE project European Green Cities NAS. In the 6. Framework program he was WP leader in the DEMOHOUSE project, WP leader and member of Executive Board of the EUR-ACTIVE ROOFer Collective Research and here he acted as SME Manager as well. He is also active in the ongoing IIE project ENSLIC BUILDING and CONCERTO II project Green Solar Cities. In the 7. Framework program he is involved as WP leader in IEE project SECHURBA, in R&D project LO-RE LCA and an ERANET project ERACOBUILD, and the Hungarian local coordinator of the CONCERTO III project PIMES.

Quality construction, quality certification (Dr. Károly Matolcsy, Zoltán Budavári)

Our society meets new challenges: ageing generation is growing, accessibility became a relevant need. Economical crisis emerges the improvement of the residential building sector, high unemployment rate in the young generation and people over 50 years. We are living in a multicultural environment and should answer the challenges of the climate change and its consequences.
Construction industry is also facing new requirements. Sustainability became one of the greatest needs, not only energy efficient solutions, but to achieve improvement in the quality of life. Indoor air quality, a building for all, reducing the materials, energy and water; new workplaces near the residential areas or teleworking, low impact transportation, efficient use of the underground spaces and decreasing the impact of natural or man made disasters should be addressed.

On the other hand in the field of the construction special hazards could be found. We should work in severe environmental conditions (wind, snow, rain, working in the height, etc.), every workplace is unique, and there are mainly small reserves in several part of the construction like roofs. The construction processes are long, last over years, and subcontractors are working in most cases. Engineering society would like to work in an iterative way and team, however public procurements, which overrule the sector, mostly are too rigid for that. It is not a secret, that the educational level of the workers of the sector is quite low.
If we want to classify the main areas of the quality in the construction, one could stress the need of the client oriented design, the high quality of the used materials and products and, related to the long process, a secure, 100% implementation.

In the client oriented design we are obliged to secure a certain flexibility, which meets the client changing need, even in the process of implementation and later time. Energy efficiency and using high share of renewable energy sources like wind and sun should be tackled during the design phase. Intelligent building concept: monitoring and controlling is required, sustainability should be secured by tools like LCA, or evaluation tools like BREEAM or LEED. The natural and man made disasters should also be handled in a proper way.
In the European construction sector the certification of the products is carried out along the Construction Products Directive made in 1988. The certification could be based on harmonised European standards or if it lacks, for example for innovative products, Technical

Approvals. An independent body or the manufacturer should supply an attestation of conformity of the product in different ways set out by standards or guidelines.
Cradle to Gate, Cradle to Grave and Cradle to Cradle like Life Cost Analysis could help to assess the natural impact of the materials. The builder should pay attention to the national regulations as well, for example in the field of fire protection. It is quite advisable to spare some samples from the greater interest of quality for later control, in case of building failure.
Besides the proper design and material quality, we need a 100% installation in the whole, long lasted implementation process. For this it is recommended issuing a surveillance plan, indicating what we are to test and at which frequency. Health and safety at the workplace is very important, hence it is a dangerous work mostly working in height. The use of intelligent monitoring tools like thermo camera or Blower Door for determining air infiltration could give a chance to have a clear picture about the performance during the work and give chance to repair the failure. Nowadays a digital photo or video documentation is also a tool to control and prove the adequate performance.
During the implementation period it is costly and hazardous to change the installers. Therefore, we should select the proper one before the implementation. For this a qualified installer scheme is recommended, which is produced by our Institute as well. The qualification consists of information about the legal and financial position and background of the installers, relating to the education level of used manpower and experiences in the construction field. In construction a good reference is the strongest recommendation to get a new job. The qualification is valid for three years.
We could conclude that quality in construction could be secured by using proper design tools for assessing sustainability, following the required certification process, choosing the given way of attestation of conformity in accordance with standards and Technical Approvals. It is important to obtain tailor-made surveillance plan and using non destructive tests during the work to detect failures and give a chance to correct it. We underline the importance of a detailed digital documentation and recommend using qualified installers.

ÉMI’s New “zero emission” office building