SYSTEM DC90

Research, Consulting, Engineering and Technology transfer, Earthquake engineering innovation center Belgrade, www.dc90.co.rs

The third Innovation Colony have been organized by
Innovation Center for seismic engineering System DC90,d.o.o., Belgrade,Serbia
Academy of Serbian inventors and scientists, SAIN-Belgrade, www.sain.rs ,
and Institute for seismic engineering and engineering seismology IZIIS, Skopje, Macedonia,www.iyiis.mk

Third Innovation Colony Kraljevo 2011

The facade of the Gymnasium (completing bracings with fine granulated mortal)

In period between 12. and 15. September 2011 at the farm of Aleksic family in the nearby village Guberevac and on buildings in region of Kraljevo. The Colony started in front of monestery Zica. After fourty five minutes historical and cultural tour the Opening ceremony was performed in Mataruska banja.

During ceremony have been received congratulations and thanks for contribution to innovation creativity in period between the two colonies.


In front the monestery Zica

Realized goals:

- Dynamic measurments characteristics of the facility by forced vibration (artificial earthquake).IZIIS institute achievements and role in the development of seismic engineering in Europe.By testing Gimnasium building are shown real dynamic characteristic of reinforced systems (periods,forms of oscillations and damping) by which needs to be fits nonlinear dynamic analysis of structures.
- Presentation, discussion and comments on new innovation in the field of earthquake construction ,created and used in period between two colonies.

Topics of colony

1. New masonary buildings wich was built in system DC90, stiffened by sprags with dumpers with five reinforced concrete floor slabs in Becici (research,design,construction,testing). Previously designed frame structures was changed with new system,and it was built new system from company Noveko-Vranje. New formwork system and building technologies with R binder and a three-piece poles virendel is applied to the object and technology tested. Testing and research were done in spring 2011.
2. New portable vibrator for forced harmonic vibrations of the system DC90 (research,construction,production and testing on building) Vibrator in the resonant frequency domain,caused a significant amplification of the amplitude moving object Gimnasium P=9000m2 achieving maximal inertial force of 22 kN. It is suitable for air transport and within 24 hours can be mounted to any destination.
3. New metal triaxal hysteresis dumper (research,construction,development). The construction is a combination of sliding support and other hysterezis devices that are placed in three directions,which are protected in the U.S.A. and Serbia). From the previous patents are created three new patents, reported in the Department of Intellectual Property Office of Serbia PO227, PO228 and PO229 from 20.05.2010.
4. Building Post Mont-Royal in Canada. On this object was designed for the first time an integrated system for providing stability in the wall in reinforced concrete frame structures with filling, and a system for ensuring the stability of the wall to the influences out of plane. Design was done by the company Hidrokvebek-Montreal and proffesor dr. Vladimir Gocevski

construction engineer. For this purpose has been developed dumper-apsorber for the stiffening out of plane. The experimental testing of new models of shock absorber type HQ Royal Canada are in process.

5. New brick for dry masonry in seismic areas, by Branko R. Babic from London (http//homepage.virgin. net/babic.branko/). Pat No.Gb 110919194.9)
6. Kinematic system to protect buildings from the earthquake from academician Cerepinski U.D. and Stanislav Sejmonov protected patents in Russia and Kazahstan (No.200516 RF,and No1725, RK).
7. Other innovative activities (numerical dynamic analysis structures in seismic conditions,fatigue in the field of small number of hysterezis cycle and behaviour construction,robotization welding works on the development dumpers,dumpers for vibration in elastic field). Display development activities of Digitex company in area of permanent monitoring of construction around the world.

Innovation colony is dedicated retrofit participants of twelve schools and to other specialists who are interested in construction and technology increased safety in seismic conditions. Also,students and younger colleagues who wish to set up a company whose business is based on innovation and whose services and products can place in all seismic risk countries of the world.

Research processes are partially helped by Ministry of Science and Education Republic of Serbia, Istitute IZIS, Skopje,GF-Innovation Centre,Belgrade, Incubator center-Technical School Belgrade, Digitex,USA, Studio Petraskovic-Obrenovac,experiment workshop for modeling Radius-Mionica and construction companies implementers of the projects.

The High school in Kraljevo, Prof L. Krastevska, T. Mihajlovik and S

Digitex accelerometer high sensitivity and accuracy of +- 0.1% and a system for acquisition and signal conversion

Absorber KN/5mm 1100 out wall plane in the High school

Building P+17 seismicaly secured by kinematic system in Sochi, Russia 24.09.2011.patent No.200,516 RF and No.1725, ROC), vertical stiffening.

Author of the system Kinematic isolation construction Stanislav Semjonov i Z. Petraskovic, Soci-Rusija,24.09.2011.

Vertical stiffening of the longitudinal wall in Agro-chemical school

Vertical stiffening of transversal wall in Agro-chemical school

The Facade of the High school

The facade of the Economic school

The Facade of the Primary school D. Tucovic

Absorbers in the process of assembling and welding to connecting element

Facade of the Primary school J. Kursula

Vertical stiffening of the Primary school J. Kursula

Internal transverzal stiffening of the Mechanical engineering school

Facade of the High school with a visible diagonal crack in wall

Internal bracing in the Electrotehnical school with dumper in right down corner

Experts of Iziiz and Digitex in the process of measuring

Discussion about the methods of testing on forced and ambient vibrations in the High school library

General Secretary SAIN Academician Mamo Zubac in conversation

Discussion during the coctail

During the awarding ceremony of thanks and recognition

Our host Aleksic in Guberevci

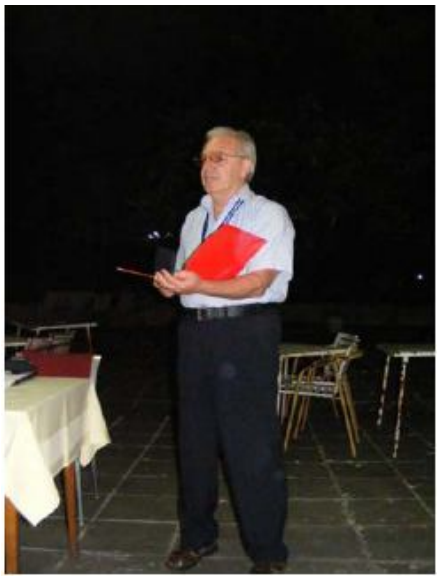
Gold plaque DC90 to head of school board Mr. Milosavljevic for outstanding contribution in organisation of school buildings retroffiting

Gold medal Nikola Tesla – the largest recognition for the contribution to testing and using new tehnology of seismic security of buildings Prof. Dr L. Krstevska

Gold plaque DC90 to Assistant Chief of school administration Mr. Nenad Slavkovic for outstanding contribution in organisation of school buildings retroffiting

Gold medal to Digitex company for using and development of permanent monitoring systems for constructions

Gold plaque for excellent contribution in realisation of retroffiting the High school to company Interklima from V. Banja, Aleksandar Karovic



Gold medal Nikola Tesla – the largest recognition for the contribution to testing and using new tehnology of seismic security of buildings Prof. Dr. LJ. Taskov

Special thanks

***Ministry of Education and Science**, Minister prof. dr. Zarko Obradovic and Assistant Minister Mr. Zoran Trninic for permanent support to researching and using new tehnologies .*

***The Civil Engineering Faculty in Belgrade, t**he Dean of The Civil Engineering Faculty prof.dr. Djordje Vuksanovic for support and promotion of innovation in the Building constuction field.*

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