

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
KYIV NATIONAL UNIVERSITY OF
CONSTRUCTION AND ARCHITECTURE



Conference program and proceedings

INTERNATIONAL
SCIENTIFIC-PRACTICAL
CONFERENCE
OF YOUNG SCIENTISTS



KYIV
UKRAINE
16-18
NOVEMBER
2016

**BUILD
MASTER
CLASS**

BUILD-MASTER-CLASS



MINISTRY OF EDUCATION AND SCIENCE OF
UKRAINE



KYIV NATIONAL UNIVERSITY OF
CONSTRUCTION AND ARCHITECTURE



POLISH ACADEMY OF SCIENCES (KYIV OFFICE)

WORKING PROGRAM AND PROCEEDINGS

INTERNATIONAL
SCIENTIFIC - PRACTICAL CONFERENCE
OF YOUNG SCIENTISTS

«BUILD-MASTER-CLASS-2016»



BUILD MASTER CLASS 2016

16-18 of November 2016
In Kyiv National University of Construction and Architecture

Ukraine, Kyiv, Povitroflotskyi av., 31

ORGANIZER OF THE CONFERENCE

KYIV NATIONAL UNIVERSITY OF CONSTRUCTION AND ARCHITECTURE

CO-ORGANIZER OF THE CONFERENCE

POLISH ACADEMY OF SCIENCES (KYIV OFFICE)

CONFERENCE IS SUPPORTED BY:

- Ministry of education and science of Ukraine;
- Ministry of regional development construction, housing and municipal economy Ukraine;
- All-Ukrainian Charitable Organization "Municipal Development Institute";
- Project of the Eighth Framework Programme of European Union on Research and Technology "Horizon 2020": «Train-to-NZEB: Building Knowledge Hubs»;
- Laboratories for research of energy efficiency problems in construction and architecture "Energy Center-KNUCA";
- Scientific and Educational Hub for Architectural Designing and Research of Nearly Zero Energy Buildings (NZEB) of Kyiv National University of Construction and Architecture

CONFERENCE OBJECTIVE:

Comprehensive exchange of experience in the design and construction, reconstruction and restoration of modern architecture objects. Dissemination and development of advanced computer-aided design technology and the practical aspects its implementation. Popularization of modern efficient materials, construction and technological equipment. Improving the qualification level of specialist of architectural and planning, design, construction, engineering and technical training program.

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Yermakovych I.
Yerukaiev A.
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THEMES OF SECTIONAL AND PLENARY MEETINGS

Plenary meetings. Energy saving and ecological concepts in the new architecture. System solutions in design and construction. Modern training and information projects of construction industry.

Section 1. Architecture and Design. Theory of Architecture. Architectural design of civil buildings. Design of Architectural Environment. Architectural design. Information technologies in architecture, computer-aided engineering and design of architectural objects. Technical aesthetics, applied geometry. Energy and resource saving in construction and architecture.

Section 2. Urban planning and land use planning. Urban planning and land use planning. Urban planning information systems and City planning cadastre. Urban Construction and Management. Improving the efficiency of urban construction. Landscape architecture. Cadastre and land monitoring. Engineering geodesy, geoinformatics and photogrammetry.

Section 3. Construction, materials and design technology of building production. Structural mechanics. Building designs, buildings and constructions. Foundation Engineering. Numerical modeling of building structures. Construction materials and products. Construction Technology of production. Standardization and certification in construction..

Section 4. Engineering systems, automated systems and environmental aspects of construction. Heat and gas supply. Ventilation systems of buildings and constructions. Water supply and sanitation. Use of water and thermal energy resources. Automated systems and measuring systems. Electronics and electrical engineering. Ecological problems in construction and architecture. Technical thermal physics and industrial heat power. Energy efficiency of construction objects.

Section 5. Construction vehicles and equipment. Machines for the production of building materials and structures. Machines for earthworks, road and forestry engineering work. Handling machinery. Building Machinery Services.

Section 6. Organization, economics and management in construction. Organization of building production. Commodity and commercial activities. Construction Economics. Management in construction and architecture.

Section 7. Information Technology. Computer science. Information Technology. Information technology in education. Project and Program Management. Computer networks. Cybersecurity.

Section 8. Historical, socio-cultural, political, legal and philosophical aspects of architecture and construction development. Social-political development of society. Physical education and sports in the conditions of building production. History of Ukrainian culture. Pedagogy, philosophy and psychology of relationships in construction. Legal relations in construction and architecture.

CONFERENCE VENUE

Kyiv, Kyiv National University of Construction and Architecture,
Povitroflotskyi av., 31.

Plenary meeting – Scientific Council Hall, aud. 466
Sectional meetings are specified during registration.

CONFERENCE EXPOSITIONAL PROGRAM

During the Conference, the participants will be given the opportunity to present scientific and technical developments, new building materials and products, scientific and methodical publications, etc.

PUBLICATIONS

According to the results of the conference, the best materials will be selected, which will be recommended for publication in professional editions of KNUCA.

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Organizing Committee cordially thanks to Polish Academy of Sciences (Kyiv office) and personally – Prof. Henrikh Sobchuk



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ENERGY
CENTRE



Train-to-NZEB

The Building Knowledge Hubs

Scientific and Educational Center for
Architectural Designing and Research of
Nearly Zero Energy Buildings of
Kyiv National University of
Construction and Architecture



arranged relative to the axis of rotation of the roller hydropneumatic accumulator. The piston of hydropneumatic accumulator is spring-loaded by compressed air whose pressure is regulated by means of the crane, which hermetically built in the lid of hydropneumatic accumulator.

Between the outer surface of the flexible chamber and the inner surface of rollers in the hole locations, which not coincide, are established of crushing elements in the form of T-shaped sharp teeth, the shelf of which contacted with the outer surface of flexible chamber. Sharp teeth in the interaction with the material have the freedom to move inside the roller, and the force of teeth move is proportional to the air pressure in the chamber of hydropneumatic accumulator, resulting in the weak components of the material are crushed more intensively than stronger. At hit non-crushable material into the crushing chamber, sharp teeth, against the force of the spring-loaded piston by hydraulic fluid hydropneumatic accumulator, retractable inside of rollers. After passing non-crushable material the sharp teeth under the action of a spring-loaded piston return to the starting position.

Regulation crushing modes is carried out both by centrifugal force at change rotational speed of rollers, and with the help of a crane, which hermetically built in the lid of hydropneumatic accumulator.

Using a roll crusher of this design will increase the crushing efficiency of medium and lesser strength building materials, and reduce labor intensity of crushing modes at regulation.

*Loveikin V., Doctor of Sciences, professor (KNUCA);
Pochka K., Ph.D, associate professor (KNUCA)*

OPTIMIZATION OF CONSTRUCTIONAL PARAMETERS OF THE DRIVING MECHANISM OF ROLLER FORMING INSTALLATION WITH THE BALANCED DRIVE

In the existing installations of superficial consolidation of concrete goods the crank- ram or the hydraulic drive of back and forth motion of the forming cart with the condensing rollers is used. During the constant starting and brake modes of the movement there are considerable dynamic loadings in elements of the driving mechanism and in elements of the forming cart which can lead to premature getting out of installation of the working condition.

For increase in efficiency of work with simultaneous decrease in costs of energy of ensuring technological process of consolidation of concrete mix and unloading of the driving mechanism it has been developed a design of roller forming installation which consists from the motionless portal and four forming carts which are executed with a possibility of reduction in back and forth motion from the general drive with four crank- ram mechanisms which cranks are rigidly fixed on uniform to a power shaft and are displaced between themselves on a corner 90. All forming devices are placed in parallel between themselves on the one hand a power shaft for ensuring consolidation of concrete mix on one technological line. When using the general balanced drive on four forming carts efficiency of installation increases, dynamic loadings in elements of her driving mechanism decrease, excess destructive

loads of a frame design decrease and, respectively, durability of installation in general increases.

The mathematical model of dynamics of the movement on the basis of which functions of change of kinetic energy of each element of installation and its total value, the moments of forces of resistance to movement of each forming cart, the moments from forces of inertia and the general moment of forces of resistance for each of forming carts are defined is developed for this installation, and also their total value given to a power shaft of installation is defined. Change of the specified functions depending on geometrical parameters driving to the mechanism is tracked, and also the optimum length of a rod at the invariable radius of a crank is determined.

As a result of the conducted researches it is established that for installation with the balanced drive on four forming carts the recommended ratio of lengths of rods and cranks has to be ranging from three to four. Results of work can be further useful to specification and improvement of the existing engineering methods of calculation of driving mechanisms of cars of roller formation both at design/designing stages, and in the modes of real operation.

Shalenko V., assistant (KNUCA)

EXPERIMENTAL RESEARCH PROCESS OF VIBRATING FORMATION OF CONCRETE MIXES

During vibration forming concrete products most responsible operations are shaping and earthen products. If the surface forming these operations are performed using equipment that has a common name – betonofornuvalne.

The results of theoretical studies suggest about the laws of motion of the system «vibration surface – concrete mix» – namely, changes the speed of concrete mixture leakage, vibration mode, the resistance in the system, the power cost of all work that characterize the system.

Check the results of theoretical research and confirm the adequacy of the calculation model of «sliding surface vibroshtamp (KVSH) – Concrete mix» probably by comparison of the results with experimental data.

To plan and conduct experimental studies were considered in line with theoretical propositions formulated the following tasks experiments, carry out simulations main parameters of laboratory stand; to design and make a stand for the realization of experiments; pick up measuring and recording equipment and sensors to measure the amplitude, pressure, velocity, force dynamometers; develop a program of experiments; determine the number of repeat tests to minimize the magnitude of random error compared to systematic error; investigate the impact of changing conditions of formation of the behavior of the system; investigate energy costs in the system for different conditions. Experiments have shown that changing the parameters of vibrations (amplitude, dynamic pressure, power) in the areas of heights from 0.1 to 0.35 m pretty much confirming the oscillation wave character of «concrete mix – vibrozbudzhuvach.» Taking into account fluctuations in the mass of concrete together with dispensing hopper reduces the impact of resonant vibrational process.

Mischuk D., Loveykin V. THE SYSTEM OF PROPORTIONAL HYDRAULIC CONTROL A MANIPULATOR ROBOT	176
Korotkov E., Volianiuk V. IMPROVEMENT OF THE EQUIPMENT SCRAPER	177
Abrashkevych Y., Machyshyn G. Gnatyuk V. MACHINE PORTABLE FOR SURFACE CLEANING	178
Abrashkevych Yu., Machyshyn G., Ovseychuk O. STANDS FOR TESTING OF REINFORCED ABRASIVE CIRCLES	179
Mischuk D. SIMULATION OF ROTARY EXTRUDER FOR «PRINT» A CEMENT MORTAL AS THE BASIS FOR CREATION OF BUILDING 3D PRINTER.....	179
Boguslavsky V., Bytlyan R. SOME ASPECTS OF CREATION OF MANIPULATOR FOR THE INSTALLATION OF PAVING SLABS	180
Zbitniev P., Nyezhtentsev O. ANALYSIS OF THE DEPENDENCE BETWEEN LOADS OF AN OVERHEAD CRANE AND THE PARAMETERS OF A FREQUENT CONTROL.....	181
Tanich H., Nyezhtentsev O. THE INFLUENCE OF SPEED MOVEMENT OVERHEAD CRANE ON THE DYNAMIC LOADS AND ENERGY LOSSES.....	181
Mishchuk E. RESEARCH WORKING PROCESS VIBRATING JAW CRUSHER IN A VIEW OF ELASTIC-VISCOUS-PLASTIC ENVIRONMENT	182
Tereshchenko K., Nyezhtentsev O. ANALYSIS OF THE DYNAMIC LOADS WHEN LOWERING THE CARGOES BY USING OVERHEAD CRANE	183
Tkachuk L., Loveykin V. THE DYNAMIC ANALYSIS OF THE BUCKET ELEVATOR MOVEMENT	184
Slobodchikov V., Balaka M. ROLL TOOTHED CRUSHER WITH THE FLEXIBLE CHAMBERS OF THE ROLLERS	184
Loveykin V., Pochka K. OPTIMIZATION OF CONSTRUCTIONAL PARAMETERS OF THE DRIVING MECHANISM OF ROLLER FORMING INSTALLATION WITH THE BALANCED DRIVE	185
Shalenko V. EXPERIMENTAL RESEARCH PROCESS OF VIBRATING FORMATION OF CONCRETE MIXES	186
Svidersky A., Mishchuk E., Rozwadowski D. EVALUATION AND ANALYSIS OF STRUCTURES VIBRATION CONE CRUSHER.....	187
Mishchuk E., Lapin A. THEORETICAL RESEARCH OF DYNAMIC DESTRUCTION OF MATERIALS IN THE CRUSHING CHAMBER OF THE VIBRATING JAW CRUSHER ..	187
Cuzmines M., Pristaylo M., Dubovenko Yu. DESIGN RUNANY DESIGNS OF ENGINEERING STRUCTURES AND MACHINES.....	188
Cuzmines M., Pristaylo M., Dolgih V., Chepel T. THE IMPACT OF GRUNTOWNY EQUIPMENT TO CHANGE STRESS-STRAIN STATE OF MAIN PIPELINES	189

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of young scientists

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Editorial Committee is not responsible for the content of conference proceedings

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