BUILDING AND ARCHITECTURE

Lesovik V.S., Elistratkin M.Yu., Glagolev E.S., Shatalova S.V., Starikov M.S.

COMPOSITIONS PROPERTIES FORMATION FOR THE BUILDING PRINTING

3D construction printing attracts the attention of the general public with its novelty, futurism of the created forms and sharp contrast with the philistine view of the construction site.

Experts see it as a great opportunity to save all types of resources, shorten construction time, the possibility of implementing advanced design developments, but also serious problems such as: the lack of a general concept for additive technologies development, limited nomenclature and high consumables cost and their application experience.

The article analyzes the interrelationships of technological factors with the properties of molding compositions, suggests their practical implementation principles.

Keywords: *3D construction printing, additive technologies, composition requirements, rheological indicators, hardening management.*

Stel'makh S.A., Shcherban' E.M., Serdyukov K.V., Pestrikov M.M., Yanovskaya A.V.

INFLUENCE OF SOME CHARACTERISTICS OF THE APPLIED COARSE AGGREGATE ON THE PROPERTIES OF HEAVY CONCRETE, DESIGNED FOR MANUFACTURING CENTRIFUGGLE PRODUCTS AND CONSTRUCTIONS

The article is devoted to the problem of heterogeneity of physical and mechanical properties of centrifuged concrete along the wall thickness of the annular section product. One of the ways to solve this problem is to control the factor of fillers, which affects the properties of concrete products and structures working on axial compression. The authors analyzed scientific and technical literature concerning this issue. An experimental study of the influence of the fractional composition of granite gravel on the strength characteristics of concrete of centrifuged products is carried out. It is established that the percentage of fractions of the granite gravel used fraction 5-10 / fraction 5-20 = 50/50, with other things being equal, has the best effect on the prismatic strength of heavy concrete. The results obtained will be applied in subsequent experimental studies by the authors aimed at identifying factors that affect the quality of concrete of centrifuged products and associated with the characteristics of aggregates.

Keywords: *centrifuged concrete, axial compression, annular section product, aggregate fraction, percentage of aggregate fractions, prismatic strength.*

Tolypina N.M. Shigareva E.M., Golovin M.V., Shigarev D.S.

SULPHATE RESISTANCE OF CONCRETE MADE FROM REACTIVE FILLER BASED ON NEPHELINE BEARING ROCKS

The weakest link of the materials conglomerate structures are the contact surface. That is what happens diffusion of aggressive agents into the material. To reduce the conductivity of the contact surfaces it is advisable to use the active fillers, which interact with the cement matrix for the different mechanisms, which reduces the permeability of the contact layer and helps increase the durability of products. Due to the interaction of chemically active fillers with the calcium hydroxide of the liquid phase of concrete formed calcium hydrosilicates tobermorite groups that collateral contact surface, which leads to deceleration (braking) of diffusion of aggressive components of the external environment into the porous material and the corrosion rate. Experimental verification confirmed the positive influence of active fillers on the corrosion resistance of concrete. The authors conducted a comparative study of the corrosion of cement concretes with normal aggregate (quartz sand) and chemically active (Artic).

Keywords: *urtites, fine concrete, sulfate corrosion, corrosion resistance.*

Drebezgova M.Yu., Chernysheva N.V., Shatalova S.V.

COMPOSITE GYPSUM BENDING WITH MULTICOMPONENT MINERAL ADDITIVES OF DIFFERENT GENESIS

In this article, new types of finely dispersed mineral additives energetically saturated due to geological and technogenic processes, which differ significantly from the traditionally used quartz raw materials - waste of wet magnetic separation of ferruginous quartzites, nanodisperse silica powder, chalk and the possibility of their joint use was investigated.

Keywords: *composite gypsum binders, multicomponent mineral additives, performance characteristic*

Tang Van Lam, Bulgakov B.I., Alexandrova O.V., Larsen O.A., Ngo Xuan Hung, Dinh Hai Nam

APPLICATION OF SOLUTIONS FINELY DISPERSED BINDERS TO INCREASE THE BEARING CAPACITY OF THE BORED PILE

Discusses the problems associated with the need to increase the bearing capacity of soil during the construction of pile foundations in conditions of alluvial soils in the floodplains of major rivers, and offers technological and design solutions aimed at improving the reliability of the foundations and reduce their material intensity.

Describes a method to increase the bearing capacity of pile foundations by means of extension of the lower end of bored piles by spraying water under high pressure with subsequent injection of a solution of a particulate binder through a drilled well in the lower part of the pile shaft for the establishment of a permanently solid connection between its lower end and a soil layer of gravel or crushed stone at the bottom of the pile trunk.

This method has a high efficiency in the case where the lower part of the pile is clamped in gravel or rocky soil. Because the soil on which the city of Hanoi (Vietnam) for the most part weak and loose, using the described method it is possible to increase the bearing capacity of pile foundations in the depth of their laying from 40 to 65 m.

Keywords: *bored pile, finely dispersed binders, pile foundations, bearing capacity, soil compaction, concrete mix, weak ground.*

Engovatov I.A., Sinyushin D. K.

MINIMIZATION OF RADIOACTIVE WASTES IN DECOMMISSIONING OF NEW GENERATION NUCLEAR POWER PLANTS

Today developing countries have created a demand for large energy capacities on the international markets. Lots of developed countries and private companies are already offering energy supplies from different sources. In this fight, Rosatom has set a goal - to offer the world a clean, safe and, most importantly, cheap energy. This article is dedicated to the topic of cost reduction at all stages of the life cycle of the power unit. The author suggests to consider cost reduction opportunities in radioactive waste management at the "decommissioning" stage behind the usage of "low activated concrete". The article contains data analysis on induced activity of the radiation protective concretes which supports a conscious choice of "low activated concrete" for radiation protection module of the reactor

Keywords: *NPP blocks, decommissioning, neutron induced activity, radioactive waste, radiation shielding concrete.*

Mailyan L.R., Stel'makh S.A., Kholodnyak M.G., Shcherban' E.M.

SELECTION OF THE COMPOSITION OF CENTRIFUGED CONCRETE ON HEAVY FILLERS

The article is devoted to the peculiarities of calculating the composition of centrifuged concretes on heavy fillers. An experiment was performed, which was carried out in accordance with the requirements of normative documents concerning structures of the annular section. The action exerted by the 2.5÷5 fraction on the physical properties of the mixture of the fraction of crushed stone 5÷20 is considered. The investigated composition of the concrete mix and the physical and mechanical characteristics of concrete from it are given. The basic equipment is described; the mode of heat and moisture treatment is assigned. The composition of concrete is class B40. Recommendations are given for further studies to improve the performance characteristics of products and structures of the annular section of heavy concrete.

Keywords: *constructions and products of annular section, centrifuged concrete, residual water-cement ratio, selection of the composition of centrifuged concrete, optimal cement consumption of centrifuged concrete, heat treatment regime for centrifuged concrete.*

Rybnikova I.A., Rybnikov A.M.

THE EXPERIENCE OF FOUNDATIONS IN SOFT SOILS

The definition of soft soils as ground structures. The design of precast pyramidal, clavate, tapered piles in vystupovani wells and foundations in wyrmbane pits. The results of field in-situ tests static indenting load in loose soils, the results of which determined their bearing ability and designs for the foundations of these structures. The technology of piling and foundations using special equipment. Lit positive experience with foundations in weak soils under buildings and structures for various purposes in different regions. Monitoring of sediments of constructed buildings and structures on the designs of the bases showed their reliability.

Keywords: *soft ground, pyramidal piles, matramony pit, stamped bore, conical pile, club-shaped pile, bearing capacity.*

Semenov A.C., Kuznetsov D.V.

DIRECTIONS OF IMPROVING THE EFFICIENCY OF MONOLITHIC CONSTRUCTION OF BUILDINGS AND STRUCTURES

At present, the volume of monolithic construction is growing at a faster pace than other technologies for the erection of buildings and structures. To increase the effectiveness of monolithic construction, it is possible to identify the factors that impede the development of monolithic construction and identify methods that will lead to shortening the construction time, improving the quality of the constructed facilities, the return on assets of construction equipment, and reducing the labor intensity of construction. In the course of the study, technical and economic indicators used to assess the effectiveness of monolithic construction of buildings and structures were identified. Measures designed to reduce the time of production, reduce labor intensity and improve the quality of construction and capital productivity.

Keywords: *high-rise building, efficiency, modern technologies, organizational and technological and economic solutions.*

Suleymanova L.A., Kocherzhenko V.V., Pogorelova I.A.

METHOD OF CALCULATION OF DURATION OF IMMERSION OF CAISSONS, TAKING IN ACCOUNT RELIABILITY OF TECHNOLOGICAL ELEMENTS

There was suggested a method of calculation of duration of immersion of caissons, taking in account reliability of main technological elements – technical equipment, workforce and material elements, which allow with sufficient degree of accuracy to define characteristics of reliability of work.

Keywords: *method, durability of immersion, caissons, reliability, technical elements, technical means, workforce, material elements.*

Nemirovsky Yu.V., Boltaev A.I.

INFLUENCE OF THE FORM AND LAYOUT OF LAYERS ON THE STRESSED-DEFORMED STATE OF HYBRID WOODEN BEAMS

An analytical approximation of the experimental tension-compression diagrams of wood along the fibers in the form of polynomials of the second and third degree is proposed. The coefficients of the approximating functions are determined in two ways: using the least squares method, using the experimental deformation diagrams; by imposing certain requirements on the diagrams, using the basic mechanical characteristics of the wood (maximum stresses and deformations, modulus of elasticity). Numerical values of the approximation coefficients for 15 different types of wood are given. The examples of calculation of heterogeneously-layered wooden structures resulted in the work showed the peculiarities of the work of such a strongly physically nonlinear and variously resisting material as wood. Variation of the wood species and the shape of the layers leads to a significant change in the bearing capacity and deformation of the structure. The possibility of changing the nature of the onset of fracture, as well as the appearance of latent forms of fracture when the materials of the layers are changed, is shown. The method developed in the article for the calculation of hybrid rod-shaped wooden structures offers great opportunities for solving optimization problems in the design, and allows rational use of various types of wood.

Keywords: *Diagrams of deformation, layered constructions, wooden constructions, physical nonlinearity, different resistance, compression, stretching.*

Zaharova L.V., Aleksandrovskiy M.V.

ABOUT THE ALGORITHM OF THE VARIATION METHOD FOR THE CALCULATION OF ELASTIC NON-FLAT FILAMENT WITH THE ACCOUNT OF FLEXURAL RIGIDITY (BENDING STIFFNESS)

At the present time, in the construction industry, hanging structures, such as suspension bridges, gas and oil pipelines, cable cars, covering of industrial and civil facilities, are increasingly used. For such structures, a thread often acts as a design scheme. The article presents an algorithm for calculating a structural element in the form of a sagging thread on the action of vertical and horizontal concentrated and distributed forces. As a design scheme of such an element, an elastic non -flat filament can be considered with allowance for flexural rigidity. Due to the non-linearity of the problem, the thread is first calculated for the action of its own weight, and then for an additional load. The calculation for the additional load is based on the variational version of the finite element method. Simultaneous use of the method of successive loading. The additional load is divided into parts and applied by steps, which makes it possible to use only linear components in the expressions of axial deformation and changes in curvature at each loading stage. This approach

allows us to use a linear stiffness matrix at each loading step, which is then easily recalculated in accordance with the geometric and physical characteristics corresponding to its new outline.

Keywords: *calculation algorithm, elastic non-flat filament, flexural rigidity, variational method, successive loading method, linear stiffness matrix.*

Domnina K.L., Repko V.N.

ON THE APPLICATION OF THE CALCULATED EXPERIMENT IN THE THEORY OF FIBER FOAM CONCRETE

To obtain high-quality building material, particularly concrete, it is necessary to comply with the conditions of a number of factors. So it is the basis for a huge number of experiments. The calculated experiment is rationally to use for all types of cellular concrete. It reduces the amount of real and targeted experiments, and also allows to evaluate the expected results of the change of state of the material. The article describes the usage of the calculated experiment for non-autoclave fiber foam concrete. Recommendations of the sequence of calculated experiment and compromise are given. Special attention is paid to finding the "threat" factor. The algorithm of the application of calculated experiment in the fiber foam concrete theory is proposed.

Keywords: *fiber foam concrete, calculated experiment, factors, compromise, multi-factor approach.*

Degtyar A.N., Serykh I.R., Panchenko L.A., Chernyshova E.V.

RESIDUAL OPERATION LIFE OF BUILDINGS AND CONSTRUCTIONS

The currently suggested methods of calculating the residual operation life are numerous, but none of these methods can be called universal. The article deals with the most frequently used today methods of determining the residual operation life of buildings and constructions. According to the existing approaches, the residual operation life is normally evaluated by just one certain parameter, and as a result, a number of factors, which substantially influence the load-bearing capacity of a structure, are not taken into account. For this reason, nowadays the determination of actual service life of buildings and constructions is an important problem to solve.

Keywords: *residual operation life, reliability, service life, emergency state.*

Glagolev E.S., Suleymanova L.A., Marushko M.V.

EFFECTIVE REPRODUCTION OF HOUSING STOCK OF RUSSIA

Acquisition of own accommodation - high-priority need for each family: we cannot talk about any social priorities of society without satisfying this need. On that basis, realization of constitutional rights of citizens to decent housing is considered as the most important socio-political and economical problem. Common size and paces of housing construction, the real well-being of people, their moral and physical feeling, political rates and motivation of behavior largely depends from the choice of those or other approaches to solving this problem.

Keywords: *housing stock, housing construction, apartment houses, individual dwelling houses, variants.*

Danilenko E.P.

APPLICATION OF MODERN LAND REGISTRATION SYSTEMS AT TOWN-PLANNING USE OF TERRITORIES OF SETTLED POINTS

The article considers the modern state and municipal accounting system of land settlements. Defined the scope of each system, the composition of indicators and characteristics of land resources. Analyzed the possibility of applying each accounting system of land to urban use of the territory settlements. Analyses problems of accounting of land resources in municipalities.

Keywords: *land resources, land registration, human settlements, urban planning, municipal management, characteristics of the land.*

CHEMICAL TECHNOLOGY

Bondarenko D.O., Bondarenko N.I., Bessmertniy V. S., Izofatova D.I., Dyumina P.S., Voloshko N.I.

ENERGY-SAVING TECHNOLOGY OF PRODUCING SILICATE-CLOD FOR LIQUID GLASS PRODUCTION

The use of low-temperature plasma in various industries today is a promising direction. An energy-saving technology for producing silicate-clod using a plasma jet has been developed. The effect of preliminary heat treatment on strength characteristics of preform furnace-charge is studied. It was experimentally confirmed that with an increase in the heat treatment temperature from 400 ° C to 620 ° C, the compressive strength increased from 0.8 MPa to 2.1 MPa.

Keywords: *energy-saving technology, silicate-clod, plasma jet, heat treatment of charge.*

Poluektova V.A., Kozhanova E.P., Kudina A.E.

PHLOROFURFUROL OLIGOMERS ADSORPTION ON POLYMERMINERAL DISPERSIONS SURFACE

The oligomers adsorption on the surface of solid body particles determines the peculiarities of the boundary layer that allow to influence the size of the dispersion phase particles, aggregative stability and dispersion systems plastification. The work presents some of the adsorption parameters of phlorofurfurol oligomers on the following adsorbents: chalk, cement and polyvinyl acetate. It has been stated that oligomer molecules are adsorbed on the surface of polymermineral dispersion materials, forming a monomolecular layer; the molecular orientation towards the surface is changed during the adsorption on the particles of different dispersion materials. It has been proved that the adsorption-solvate factor is of great importance for stability improving of the polymermineral dispersions and plastification of dispersion systems by the phlorofurfurol modifier. It has been determined that the adsorption on the particles surface is provided by ion interaction between the negative oxy groups of the phloroglucinol unit and the positively charged active centers of the dispersion phase surface and dispersion forces of the interaction between the system of the oligomer aromatic rings and the particles surface.

Keywords: *adsorbtion, phlorofurfurol oligomers, polymermineral dispersions, system plastification, adsorption-solvate factor*

Shahova L.D., Chernositova E.S., Denisova J.V.

RESEARCH OF INFLUENCE OF TECHNOLOGICAL ADDITIVES ON THE RHEOLOGICAL PROPERTIES OF CEMENT POWDER

The main factors influencing the fluidity of the cement in the presence of technological additives when grinding are considered. The influence of grinding AIDS on the rheological properties of cement powder is studied. Performed correlation and regression analysis of the influence of physico-chemical parameters of the samples of cement on the flowability. The analysis found that the fluidity of the cement has a weak correlation on the studied variables, indicating the influence of the variable factor not yet quantified.

Keywords: *cement powder, cement grinding AIDS, the fluidity of cement, correlation analysis.*

Kosukhin M.M., Kosukhin A.M., Bogacheva M.A., Shapovalov N.A.

THE STUDY OF VARIOUS SUPERPLASTICIZERS' INFLUENCE ON THE RHEOLOGY OF CLINKER MINERALS WATER SUSPENSIONS

The findings of the research of various superplasticizers' influence on rheological properties of clinker monominerals water suspensions are presented. It has been demonstrated that the admixtures' plasticizing activity is determined by the nature of the monomineral, its specific surface and the nature of the admixture's hydrophilic groups, as well as by the components ratio for complex admixtures. The optimal dosages of admixtures for monomineral suspensions of clinker minerals change in the row C_2S, C_3S, C_3A, C_4AF, which allows predicting the influence of admixtures on rheological properties of systems containing cements of various mineral compositions. The received data correlate with the research findings of admixtures' influence on cements of various mineral compositions, which allows evaluating the influence of the admixtures on the systems with different cements, and economically and technologically substantiate the selection and consumption of admixtures depending on the type of cement and its mineral composition.

Keywords: *superplasticizers, complex admixtures, concrete mixes, colloid-chemical properties, plasticizing activity, rheological properties, clinker minerals, monomineral suspensions, cements of various mineral composition.*

Andronov S.Yu.

INSTALLATION FOR THE PREPARATION OF FIBER FIBERS IN THE PRODUCTION OF COMPOSITE DISPERSED-REINFORCED ASPHALT-CONCRETE MIXTURES

In the practice of road aerodrome and bridge construction, a composite material such as asphalt concrete is widely used. Asphaltic concrete is prone to cracking, peeling, chipping, the formation of ruts, waves and depressions. One of the ways to increase the "durability" of asphalt concrete to external loads is the use of fibers and threads in its composition. The introduction into a mixture of long (extended) elements – yarns, fibers or wire, with satisfaction and consistency of quality indicators, as well as the convenience of its use, is currently an insoluble problem. The introduction of a mixture of small (discrete) elements in the mixture makes it possible to achieve their uniform distribution (dispersion) in the mixture, and to obtain a "composite" material with higher physical and mechanical properties in the finished structural element.

Keywords: *composite material production technology, basalt fiber, density of basalt fiber, basalt fiber cutting length, laboratory tests of asphalt concrete samples, introduction of basalt fiber into the asphalt concrete mixture.*

Schekina A.Yu.

EFFECTS OF WASTE WASTE IN THE COMPOSITION OF BINDERS, IN THE CONTEXT OF IZODECYL PROXYETHYAMINE CONTAINED IN THEM

The article presents the results of studies to determine the effect of isodecyloxypropylamine adsorbed on the grain surface of flotation waste of ferruginous quartzites on the properties of astringent compositions. The results of rheological studies of astringent compositions based on flotation waste containing different amounts of flotation agent in the waste composition are presented. The plasticizing effect exerted by flotation waste on astringent compositions and the hydrophobizing effect of isodecyloxypropylamine on astringent compositions was revealed.

Keywords: *flotation waste of ferruginous quartzites, flotation agent, astringent compositions, effective viscosity.*

MECHANICAL ENGINEERING AND MACHINE

Uralskiy V.I., Sinitsa E.V., Uralskiy A.V., Sazhneva E.A.

TECHNOLOGICAL MODULE OF THE CLOSED CIRCULATION CYCLE

The article presents scientific and technical developments on the creation of a centrifugal grinding unit of the combined grinding method, the design of which allows improving the quality of the finished product by providing a dry and wet method of grinding the material in one unit, and also increasing the productivity of the unit by providing a continuous grinding process.

Keywords: *technological module, grinding unit, grinding, closed cycle.*

Semikopenko I.A., Voronov V.P., Gorban T.L.

MATHEMATICAL DESCRIPTION OF THE PROCESS OF GRINDING MATERIAL IN THE AREA OF COUNTER-INTERSECTING FLOWS IN CENTRIFUGAL COUNTERCURRENT MILL

Given a mathematical description of the motion of the grinding material in the area of counter-intersecting threads in the grinding chamber of the centrifugal-flow mill. The calculated scheme to describe the process of grinding material in the area of counter-intersecting threads. As a result of theoretical research analytical expression that allows to determine the degree of particle size reduction of the material in the zone of tangential collisions depending on the constructive and technological parameters of a centrifugal countercurrent mills.

Keywords: *overlappingflows, particlecrushing*

INFORMATION TECHNOLOGY AND CONTROL SYSTEMS

Koltunov L.I., Gol`tsov Y.A., Kizhuk A.S.

MATHEMATICAL MODELS OF COMPLEX STUDY OF THE REGULARITIES OF ELECTROSTATIC DEVICES FOR FILTRATION AND IONIZATION OF AIR

The analysis of modern systems and devices of air filtration and ionization for premises, buildings and constructions is carried out. Features of mathematical modeling with the results of numerical and experimental studies of electrostatic systems and devices, distributed and autonomous, are presented. The features of discrete models of investigated objects in the operator form are presented. Computational algorithms, the structure of a complex of software tools for numerical simulation, and the features of the functioning of local systems for automatic control of electrostatic objects in the automated dispatch control system are developed.

Keywords: mathematical modeling, electrostatic systems and devices, automated dispatch control system, air filtration and ionization, one- and two-zone electrostatic precipitators, finite difference method, finite-difference approximations of elliptic equations and boundary conditions, electric potential field, electric flow function.

Potapenko A.N., Kumar U., Shtifanov A.I.

ABOUT THE METHOD FOR ESTIMATION OF CIRCUIT SOLUTIONS FOR DISTRIBUTED LIGHTNING PROTECTION OF HIGH-ENERGY OBJECTS

The article presents a method for estimating the features of circuit solutions for distributed external lightning protection of high-energy objects. The method is based of determining the appanage distribution of the flow function lines (FFL) for solving boundary value problems for lightning protection systems (LPS) for objects in the electrostatic field of a thunderstorm cloud. On the basis of mathematical modeling and computational experiments, this method was tested in the study of circuit solutions for distributed LPS high-energy objects. The circuits of external LPSs were studied both in the form of composite lightning receivers of the metal-insulator- metal type (MIM) and circuits with distributed metallic lightning receivers. An analysis of the results of computational experiments for boundary value problems has shown that MIM systems are more efficient (the results differ in dozens of times) under conditions of lightning interception.

Keywords: *electrostatic field, lightning receivers, lightning protection, mathematical modeling, computational experiment*

Stativko R.W., Rybakov A.I.

MODELING OF THE VIII SUMMER GAMES OF PUPILS OF RUSSIA IN WEIGHTLIFTING AND RUGBY

In this work it is said about the importance of organization and holding of sports events for the image of a regional higher educational institution. For the successful conduct, it is necessary to study and determine the initial and reporting information, logical control flows, material flows and performers organizing sports events. The necessity of using computer technologies for efficient modeling of business processes is shown. The role of CASE means in the modeling of managerial processes is indicated. According to the official letter, the main events for organizing sports events are identified. According to the list of measures, a contextual IDEF0 diagram was created. The created diagram allows describing the analyzed object as a set of control actions. The functional decomposition of the main context diagram has been performed. The presented decomposition allows us to describe the logical flows of control, material flows and performers.

Keywords: *computer technology, CASE tools, modeling of business processes.*

ECONOMIC SCIENCES

Benderskaya O.B.

DYNAMICS OF THE STABILITY OF THE FUNCTIONING OF THE BELGOROD'S ENTERPRISES OF INDUSTRY OF BUILDING MATERIALS AND CONSTRUCTION INDUSTRY IN 2013-2016 AND THEIR COMPREHENSIVE ASSESSMENT FOR 2016

The article analyzes the stability of the functioning of five leading enterprises for the production of building materials and building structures in Belgorod. Their comprehensive assessment is performed with twelve indicators (coefficient of financial stability, the ratio of the supply of stocks of stable working capital, current liquidity ratio, growth rates of revenue, profit from sales, net profit and equity, as well as the indicator whether profitability of sales, total assets and equity). Also a rating of sustainability of enterprises in 2016 is performed. For the same indicators, an analysis of the dynamics of the stability of functioning was carried out and dynamic complex estimates of the sustainability of the functioning of each of the enterprises for the period 2013-2016 were calculated. Conclusions are made about the negative impact of the sanctions crisis on most of the enterprises surveyed and on maintaining their capacity for sustainable functioning and a normal financial condition.

Keywords: *business administration, analysis of the economic performance of an enterprises, construction materials industry, construction industry, stability of the enterprises functioning, comprehensive assessment, sustainability rating of enterprises.*

Gerasimenko O.A., Avilova Z.N.

LEGAL REGULATION OF CONCESSIONS AS FORMS OF STATE-PRIVATE PARTNERSHIP AND PECULIARITIES OF CHANGES TO CONCESSION LEGISLATION IN THE SPHERE OF HOUSING AND UTILITY SERVICES

The article describes the distinctive features of various legal models of the use of concession mechanisms in the housing and communal services, provides a detailed overview of changes in concession legislation that have been adopted and entered into force at the present time. Also, an analysis of the main trends and trends in the development of the concession mechanism in the regions, the formation of recommendations and proposals for state and municipal authorities aimed at improving the effectiveness of the application of concession agreements for the social and economic development of the territories.

Keywords: *public-private partnership, project, infrastructure, concession, legislation, housing and utilities.*

Demura N.A., Yarmolenko L.I.

INFORMATION SUPPORT, STATE AND PROSPECTS OF ECONOMIC DEVELOPMENT OF ENTERPRISES OF THE CONSTRUCTION INDUSTRY

At present, the problem of information support for the economic development of economic entities at various levels has become acute.

In this connection, the actual task of the enterprises of the construction industry is to obtain accessible information resources for making managerial decisions. In the rapidly changing dynamics of the construction market and the need for prompt management decisions on the formation of tactics and strategies for the economic development of enterprises in the industry, it seems necessary to develop a list of key indicators of economic development and sources of information to obtain them.

The results obtained will allow supplementing information on the specifics of the development of the construction industry in the context of the national economy and the region. The trends revealed during the research make it possible to conclude that the role of information support for the development process is strengthening. The results of the research can be used in the development of regional economic and information policies of economic entities.

Keywords: *economic development, information support, construction industry.*

Buhonova S.M., Sergeeva S.A.

PROBLEMS OF REINDUSTRIALIZATION OF RUSSIAN INDUSTRY ON THE NEW TECHNOLOGICAL PRINCIPLES

The article considers the problems facing the accelerated reindustrialization of Russian industry, the course for which is taken by the Government of the Russian Federation in 2014. The main problems in the study indicate the high dependence on import in raw materials, engineering, technology and weak diversification of production. The close connection of these problems allows us to solve them simultaneously, conducting diversification of production in areas that require a speedy import substitution. The article notes that the accelerated passage of the fifth technological structure and the transition of Russia to the sixth technological structure in conditions of limited resources and time is possible due to the accelerated development of priority industries, the choice of which is based on the analysis of statistical data, the study and compilation of information of the basic program documents and documents strategic planning of the Russian Federation. At the end of the study, it was concluded that the priority sectors developing synchronously will support each other, speeding up the solution of import substitution and diversification in each of these industries, and also having a significant multiplier effect on the development of other related industries that will start developing as a "second wave" following the "locomotives".

Keywords: *industrial policy; reindustrialization; economic recession; technological structure; import substitution; diversification; innovative technologies.*

Gukova E.A.

MAIN PROBLEMS AND WAYS OF THEIR SOLUTION IN THE DEVELOPMENT OF INDUSTRIAL MARKETING IN RUSSIA

In this study, industrial marketing is considered as the basis of economic and industrial activity of enterprises in the industrial complex of the region, in particular, marketing activities as a tool that contributes to increasing the level of competitiveness of industrial enterprises. The author developed an approach to the system of strategic development of industrial enterprises based on the use of marketing tools.

Keywords: *the cost of construction, the system of estimated pricing, estimated rationing, construction industry.*

Avilova Z.N., Tselyutina T.V.

CONSULTING RESOURCES AS A COMPONENT OF THE INNOVATIVE POTENTIAL OF THE CONSTRUCTION SECTOR OF THE REGION

The article reveals the role and importance of consulting resources as a component of the innovative potential of the construction sector in the region. Consulting firms and independent professional consultants related to the innovation infrastructure of the region are represented as a set of organizations serving the scientific, innovative, industrial spheres of the economy that support the information and organizational innovation process. The work outlines the main functions and directions of construction consulting at the present stage; the stages of the consulting cycle as a process of providing business with consultative resources are listed; the main problems of commercialization of innovations in the construction sector, related to the specifics of the industry character, are being raised.

Keywords: *consulting, building, innovative potential, economy, region, company, resource.*

Chmireva E.V., Lavrinenko E.A.

ANALYSIS OF PROJECT MANAGEMENT SYSTEM IN THE BELGOROD REGION

The application of the principles of project management in the Executive authorities and state authorities of the Belgorod region is regulated by regional legal acts. Very important for the implementation of project management in the region is the creation of automated information system "Project management". The studies found that the implementation of project management in the government of the Belgorod region led to the emergence of a significant effect for the entire regional social-economic system. The article highlights the success factors in the implementation of project management in the government of the region.

Keywords: *project management, information system project management project management in the Belgorod region, infrastructure security project management, project office.*

Zhiltsov S.A.

CONCEPTUAL FRAMEWORK FOR PROJECT MANAGEMENT IN THE FIELD OF RENEWABLE ENERGY SUPPLY TO REMOTE CONSUMERS

The article explores the evolution of project management approaches to innovations starting from the 4th millennium B.C. until nowadays. Prehistory and history periods of project management of innovations as a science are identified. In each period, it is proposed to distinguish five sub-periods that correspond to the changes in approaches and methods of practical management and stages of increment in scientific knowledge in this field. Energy project life cycle phases and stages are systematized. Energy project management features are considered. The revealed influence of industry-based and technological factors requires two types of management – administrative and production ones, including dispatching and operational control, both of which can be implemented at operational, tactical and strategic levels. The matrix of elements, subsystems and tools of project management in the field of energy supply has been developed. The management tasks are classified depending on the stage of the life cycle of the project and the type of management. This will enable to more reasonably substantiate management procedures for the projects of innovative technology based power supply to remote consumers.

Keywords: *project management, renewable energy sources, innovations, energy supply, power generation.*

Baranov V.M., Kovtun Y.A., Shevtsov R.M., Somina I.V.

THE INTERACTION OF THE ORGANIZATIONS OF CREDIT AND FINANCIAL SECTOR LAW ENFORCEMENT AGENCIES IN THE SPHERE OF ECONOMIC SECURITY

The article analyzes actual problems of interaction of law enforcement bodies, security service organizations in the process of disclosure and investigation of crimes in credit-financial sphere. Before the joint operation of services for the prevention of offences in credit-financial sphere, the analysis of the causes and conditions contributing to, and developing through effective preventive measures. Dis-cusses the basic directions of activity of law enforcement agencies on the collection of information from various sources, which will allow you to understand the content of specific phenomena and processes that determine crimes in credit-financial sphere for the following effective ensure the economic security of organizations from criminal governmental abuse. A mechanism to attract competent individuals to the development of proposals and recommendations of a preventive nature, able to give consultation and advice on personal issues that arise in the process of prevention and disclosure of crimes in credit-financial sphere.

Keywords: *cooperation; economic security; prevention of crime; security services.*

Kayushnikova M.V., Andreeva O.N.

ANALYSIS OF CONDITIONS OF DEVELOPMENT OF INNOVATIVE ACTIVITY IN BELGOROD REGION

Currently, much attention is paid to innovations, which play an important role in ensuring modern economic growth, public welfare and political interest. This article presents an analysis of the indicators of innovative development of the Belgorod region, identifies the problems of innovative development. Innovative infrastructure is presented as a tool through which resource support is provided and an enabling environment for innovative development of the region is formed. The study focuses on the analysis of indicators of innovative development of the Belgorod region, including through comparison with the indicators of the regions of the Central Federal District. Our analysis shows that with significant research and production capabilities of the region, the output of finished innovative products at an average level, which in general may result from a greater focus of researchers on "pure" scientific activity with little participation in commercial projects, which characterizes the stage of the formation of regional innovation systems.

Keywords: *region, innovative infrastructure, elements, business incubator, technopark, technopolis, innovation center, territorial cluster, infrastructure support.*

Moiseev V.V.

SCIENCE AS THE FACTOR OF INNOVATIVE ECONOMY

The article deals with topical problems of the innovation economy of the Russian Federation in modern conditions, reveals the main reasons for the inadequate development of real sectors based on innovations and investments, and the introduction of scientific achievements in production. On extensive factual material, the author analyzes the reasons for the need for transformations in the scientific community, increasing the role of domestic scientists in accelerating the transition from raw to innovative development. A significant place in the study is the analysis of problems, without the solution of which Russia can not yet become a

prosperous country. The author makes a valid conclusion that the knowledge economy should become the basis of a new economic strategy on the basis of which it will be possible to solve many accumulated problems of modern Russian society.

Keywords: *science, knowledge economy, economic strategy, Western sanctions, state regulation of the economy.*

Usmanov D.I., Usmanov I.U.

METHODOLOGY OF EVALUATION OF INFLUENCE OF GLOBALIZATION FACTORS ON THE SOCIO-ECONOMIC INEQUALITY OF REGIONS (PART 1)

The article touches upon the key directions of globalization processes affecting economic growth and the level of interregional differentiation for a number of features (integration, border costs, trade flows (including building materials and technologies), sanctions restrictions, etc.). Conceptually categorical definitions are justified: «factors of globalization», «political boundaries», «economic boundaries», «border costs» and their role in the analysis of applied aspects of research. The authors attempt to identify specific approaches to isolating the factors of globalization, which lead to a concentration of economic activity in the region and an increase in socioeconomic inequality.

Keywords: *inequality of regions, trade costs, political boundaries, economic borders, border costs, globalization processes, economic integration, globalization factors, the index of ethno-economic inequality, foreign trade, gross regional product, etc.*

Ermakova Yu.A., Parfenyukova E.A., Shirina N.V.

APPLICATION OF INFORMATION SYSTEMS AND TECHNOLOGIES FOR CREATING THE BUILT-UP AREAS CADASTRE

The paper presents the main research findings concerning creating an electronic cartographical fund through an example of an urban settlement in one of the Belgorod region districts with the purpose of implementing the built-up areas cadastre with using up-to-date information systems and technologies.

Keywords: *cartographical fund, electronic basemap, SAS.Planet, cadastral division.*