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У збірнику представлені результати сучасних наукових і науково-технічних досліджень та розробок із дослідження, проектування, експлуатації та реконструкції будівельних конструкцій, будівель і споруд; будівельної фізики та енергоефективності будівель і споруд; удосконалення й проектування сільських будівель та вулично-дорожньої інфраструктури.

Призначений для наукових й інженерно-технічних працівників, аспірантів і магістрів.

Збірник наукових праць рекомендовано до опублікування вченою радою Полтавського національного технічного університету імені Юрія Кондратюка, протокол № 2 від 01.11. 2013 р.

Збірник уключений до переліку наукових фахових видань, у яких можуть публікуватися результати дисертаційних робіт (Постанова президії ВАК України №1-05/4 від 14.10.2009 року)

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UDC 69:65.016 (477)

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STATUS AND PROSPECTS OF DEVELOPMENT OF THE CONSTRUCTION INDUSTRY IN UKRAINE

The condition of Ukrainian building sphere development is observed. The changes, which took place in the industrial, housing and uncompleted building for the last decade are analised. The prior directions of the sphere development are suggested.

Keywords: *building sphere, construction , prospects, key trends.*

UDC 624.012.46:620.193.2

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ESTIMATE OF THE STATIONARY ELECTROLYTIC POTENTIALS OF THE ARMATURE'S REINFORCED CONCRETE CONSTRUCTIONS IN THE TIME OF ITS ELECTROCHEMICAL ALTERATION

The opportunity of using the theory of opportunities for the estimation of the stationary electrolytic potentials of the armature's reinforced concrete construction in the time of its electrochemical alteration is proved.

Keywords: *the armature's reinforced concrete constructions, the stationary electrolytic potential, the estimate of the stationary electrolytic potential.*

UDC 691.22:669.162.144:006.354

B.A. Bondarev, ScD, Professor
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SCIENTIFICAL AND PRACTICAL SUBSTANTIATION OF RECEPTION OF CUBE-LIKE RUBBLE FROM CAST SLAG OF BLAST FURNACE INDUSTRY

This paper is about reception improved cube-like shape rubble from blast furnace slag for using in asphalt concrete mixes. There are resulted theoretical preconditions of reception from cast domain slag rubble for asphalt concrete, and also ways of improvement of the form of the grain received on modern cone crushers.

Keywords: *blast furnace slag; slag asphalt concrete; cone crusher; dispersion; fraction; cube-like.*

UDC 514.18

O.V. Vorontsov, PhD, Associate Professor
Poltava National Technical Yuri Kondratyk University

DESIGNING OF CONSTRUCTION AND MACHINE BUILDING OBJECTS BY ARBITRARY DISCRETE VALUES OF NUMERICAL SEQUENCES

Research of discrete determination of polynomials of different degrees, has been conducted which are widely used for the geometrical design of architecture, construction and machine building objects, with arbitrary discrete values by means of the studied properties of transition from reserved to recurrent form of task for numerical sequences.

Keywords: *discrete geometrical designing, recurrent dependences, numerical sequences, polynomials of different degrees.*

UDC 628.23

D.V. Guzik, PhD, Associate Professor
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CYCLONE-DRYING CHAMBER FOR BULK MATERIALS

The paper proposed a new design of cyclone. It can further dry the material. Cyclone can greatly simplify the process for bulk materials.

Keywords: *drying chamber, cyclone, granular material.*

UDC 636.083.31

O. Guzyk, post-graduate
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Poltava National Technical Yuri Kondratyuk University

RABBITS' AND ANIMALS' NEW GROWING TECHNOLOGY AND HOUSING SCHEMES

The high growth rate factors of rabbits and animals are defined. There are three housing schemes in rabbits' and animals' farms such as: outdoor hutches, sheds and enclosed buildings with adjustable microclimate parameters. But, in author opinion, the hutch-covering system is the best.

Keywords*: housing scheme; outdoor hutches system; shed; enclosed buildings with adjustable microclimate parameters; hutch-covering system.*

UDC 625.768.6:001.891.573

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CHANGE OF TEMPERATURE OF AN ASPHALT CONCRETE MIX AT REPAIR OF CITY ROADS

Results of research of temperature of an asphalt concrete mix are given in technological process of paving.

Keywords: *hot asphalt concrete mixes, variation of temperature of an asphalt concrete mix, law of distribution of temperature of an asphalt concrete mix.*

UDC 624.21

Zapotochny R.M, post-graduate
National University «Lviv Polytechnic»

DEFORMABILITY OF PRECAST WITH CAST-INPLASE CONTINUOUS TWO-BEEM BRIDGE EXPERIMENTAL MODEL

The paper describes a new design of reinforced concrete two-beem bridge for difficult construction conditions, design of experimental model of the bridgebeem with straight, curve and transition curve areas. Also the paper describes program of experimental research and deflection curve of experimental model for diferent load conditions.

Keywords: *two-beem bridge, experimental model, deflection curve.*

UDC 625.72:629.79:314.44:574.2

V.V. Ivasenko, applicant
T.P. Litvinenko, PhD, Associate Professor
Poltava National Technical Yuri Kondratyuk University

CLASSIFICATION OF ELEMENTS OF BARRIER-FREE SPACE AND REQUIREMENTS FOR THEM

The parameters the basic means and analyzed the regulatory requirements regarding each means of ensuring a comfortable, accessible, informative street and road network.

Keywords: *street and road network, people with disabilities, barrier-free space and means of ensuring a barrier-free space.*

UDC 624.7/.8

V.V. Ilchenko, PhD, Associate Professor
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THE ENSURING ACCURACY OF GEODETIC WORK AT BUILDING OF ROADS

The normative requirements of geodetic work at building of roads is considered. The influence of the accuracy of geodetic work to evenness road pavement has been defined.

Keywords: *roads, geodetic work, road pavement.*

UDC 624.7/.8

V.V. Ilchenko, PhD, Associate Professor
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THE RURAL ROADS: CURRENT STATE AND DEVELOPMENT PROSPECTS

The analysis of the current state of road network Ukraine and substantiate of the modern normative requirements for rural roads has been proved.

Keywords: *rural roads, normative requirements.*

UDC 624.21.004.69

V. Kvasha, ScD, Professor
L. Salijchuk, PhD, senior researcher
National University «Lviv Polytechnic»
V. Kotenko, chief
M. Nechyporenko, researcher
State Roads Research Institute behalf M.P. Shulgina

DESIGN OF RECONSTRUCTION BRIDGE ACROSS THE SULA RIVER NEAR MLYNY VILLAGE IN POLTAVA REGION

Designs of the existing bridge and variations of design decisions reconstruction of the bridge extension bill fabric monolithic concrete slab and reinforcement beams, change their static schemes into continuous span are described.

Keywords*: precast concrete span structure, dissected along the length of prestressed beams, bridges canvas, extension, strengthening, monolithic concrete slab, change the static scheme.*

UDC 624.044:624.041.6

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I.A. Stolevic PhD, Associate Professor
S.A. Kravchenko, PhD
S.V. Zinchenko PhD
A.I. Stolevic, student
Odessa State Academy of Building and Architecture

ESTIMATION OF DURABILITY, CRACK RESISTANCE AND DEFORMABILITY OF PRELIMINARY TENSE FLAGS OF CEILING FROM KERAMZITE CONCRETE ON CARBONATE SAND AND CEMENT-ASH ASTRINGENT

Experimental information and their analysis is resulted as evaluated by durability, crack resistance and deformability of preliminary tense flags of ceiling from keramzitoconcrete on carbonate sand and cement-ash *astringent.*

Keywords: *keramzite concrete, durability, deformability, flags of ceiling.*

UDC 666.972

T.S. Kugaevskaya, PhD, Associate Professor
V.V. Shulgin, PhD, Associate Professor
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EXPERIMENTAL EVALUATION OF THE EXPEDIENCY OF DETERMINATION OF THERMAL INSULATION BOX WARMING DEGREE IN THE PROCESS OF CEMENT HEAT GENERATION RESEARCH

The expediency of determination of warming degree of thermal insulation box (which contains a concrete sample) during the study of cement heat evolution under its hydration is experimentally shown.

Keywords*: concrete sample, cement heat evolution, experiment.*

UDC 624.04 531/534

M. Leshchenko, applicant
T.A. Galinska, PhD
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RESEARCHING OF WALL CLADDING STRUCTURE HEAT ENDURANCE IN CIVIL BUILDINGS DURING THEIR THERMO MODERNIZATION

In this work are results of thermotechnic significatives of wall cladding structure in civil building. Dependence of thermotechnic significatives, what was got depending on the structural options during their thermo modernization.

Keywords: *wall cladding structure, thermo modernization, thermotechnics significatives*

UDC 625.71

T.P. Litvinenko, PhD, Associate Professor
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ENVIRONMENTAL DESIGN PRINCIPLES OF HIGHWAYS

Are considered the impacts of automotive infrastructure on the environment. Are identified and structured ecological design principles roads.

Keywords: *road, ecological principles, factors of influencing automobile infrastructure environment.*

UDC 625.765

T.P. Lytvynenko, PhD, Associate Professor
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Poltava National Technical Yuri Kondratyuk University
O.V. Ivanina, Member of the Poltava Regional Council,
First Deputy Chairman of the Poltava district administration

INTERNATIONAL EXPERIENCE DESIGN OF WAYS FOR THE MOVEMENTOF INDIVIDUAL CLEANER VEHICLES

Shows the results of the study of foreign experience implementing infrastructure for the movement of individual eco-friendly vehicles in the urban road structure of the settlements.

Keywords: *individual eco-friendly modes of transport, street and road network, transport.*

UDC 666.972.16

Y.N. Neduyev, PhD, Associate Professor
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Poltava National Technical Yuri Kondratyuk University

MINERAL COMPLEX ADDITIVE FOR CONCRETE

In the article the methods of acceleration of hardening of portlandcement are considered without heat of humidity treatment, but in presence the complex chemical additions-accelerating of hardening. Influence over of complex additions is brought in different combinations on properties of cement dough and hardening cement. Optimal composition of additions the use of that in combination with the technological receptions of making of concrete wares can give a energy-savings effect on a production is offered.

Keywords: *additives accelerators cement hardening, seed crystallization, structure of cement, alum sulphate.*

UDC 624.012.8

O.B. Nosach, PhD
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FEASIBILITY COMPARISON OF MASONRY FENCING STRUCTURES

The problems of rational choice of cost-effective load-bearing stone walling. Feasibility comparison of the most common types of designs, to provide guidance for designers.

***Keywords**: brick, masonry, stone bearing wall construction, the effectiveness of masonry structures.*

UDC 631.22/.23:72.012

O.V. Pedchenko, post-graduate
Poltava National Technical Yuri Kondratyuk University

EXPERIMENTAL STUDIES OF MICROCLIMATE LIVESTOCK BUILDINGS AND CULTIVATION FACILITIES

Experimental studies of microclimate in the livestock cultivation buildings and structures are conducted in order to verify the possibility of energybiological complex unification. Experimental researches on real production facilities have confirmed the feasibility and advisability of combining livestock buildings and cultivation plants.

***Keywords:** energybiological complex, association, livestock building, greenhouse facilities, climate, carbon dioxide, relative humidity.*

UDC 658.152.012.2:69

A. Redkin, PhD, Associate Professor
D. Tolkachov, applicant
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USING OF THE PROJECT MANAGEMENT IN THE BUILDING INVESTMENT PROJECTS AND THE PROGRAMS OF DEVELOPMENT OF THE ENTERPRISES

The advanced forms and standards of the organizations that increases of efficiency of building on the basis of use of the newest procedures and tools of project management and engineering are considered.

***Keywords:** the standards of project management, engineering.*

UDC 622.245

P.I. Svitalka, PhD, director Poltava UkrDGRI
V.V. Soloviev, ScD, Professor
O.V. Bandurina, PhD, Associate Professor
Poltava National Technical Yuri Kondratyuk University

METHODS AND RESULTS DETERMINATION OF STRENGTH HYDROCHLORIC ROCKS DEPENDING ON THE SPEED OF INELASTIC STRAIN

A determination of strength depending on the speed of inelastic deformation under creep installed at various stressful conditions with regard to thinning.

Keywords: *mode of deformation, deformation, well, trunk, salt rock.*

UDC 692.231.3:699.86

A.V. Semko, ScD, Professor
O.I. Yurin, PhD, Associate Professor
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EFFECT OF MUTUAL LOCATION OUTSIDE THE BUILDING AND ANGLE WINDOW ONTO THE INSIDE SURFACE OF ANGLE

The paper presents the results of theoretical studies of the influence the relative position of the windows and the outer corner of a brick wall on the temperature distribution on the inner surface of the walls and windows of the slope and according to regulations. The possible ways of bringing the considered section of wall in line with the standards.

Keywords: *outer corner windows slope, temperature field.*

UDC 624.21.004.69

S.M. Stechyshyn, senior lecturer
«National University «Lviv Polytechnic»

STRENGTH OF REINFORCED CONCRETE BEAMS OF THE CROSS SECTION OF SPAN BRIDGE STRUCTURES WIDEN BY THE OVERHEAD PLATE

Methodology and results of the strength experimental determination of the standard cross section and the oblique section ofseparate real bridge beams after the typical project number 56 are given. These bridge beams are combined for the joint action with the overhead plate of two types: cast-in-place and precast construction.

Keywords: *bridge beam, overhead plate, section, load distribution, moment of flection, traverse force.*

UDC 69.658.5:624.016

L.I. Storozhenko, ScD, Professor
E.V. Dyachenko, PhD, Associate Professor
G.M. Gasii, PhD, Associate Professor
S.F. Gapchenko, post-graduate
Poltava National Technical Yuri Kondratyuk University

STRUCTURAL-CABLING STEEL REINFORCED-CONCRETE STRUCTURAL COVERING INSTALLATION TECHNOLOGY BY ENLARGED BLOCKS

Focuses on the installation technology of strucrural-cabling steel reinforced concrete covering structures. Devoted to the use enlargement of covering structures with mobile stand.

Keywords: *installation technology, steel reinforced concrete, strucrural-cabling, covering structures.*

UDC 69.04

A.I. Teselkin, PhD, Associate Professor
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NEW APPROACH TO THE CONCEPT OF THE AUTOMATED DESIGN IN CONSTRUCTION

The modern principles of information modeling of buildings and constructions are stated. Various program applications for development of design and budget documentation, and creation of computer models of buildings and constructions are considered.

Keywords: *computer models, information modeling, new technologies of design.*

UDC 625.74/.77

I.V. Tkachenko, post-graduate
T.P. Lytvynenko, PhD, Associate Professor
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COMPREHENSIVE AND FOUR-DIMENSIONAL APPROACH TO THE DESIGN OF ROAD BEAUTIFICATION

The method of designing an integrated road beautification was improved in accordance with the proposed principle – spatial corridor modeling, which is based on a comprehensive and four-dimensional approach.

Keywords: *beautification, roadways, street, spatial corridor, visualization.*

UDC 699.866:692.232

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NEW RULES FOR CALCULATING TEMPERATURE AND HUMIDITY CONDITIONS ENCLOSING STRUCTURES

The article presents an improved mathematical model and algorithm for calculating the temperature and humidity regime envelope from the front insulation that can more accurately describe the thermal and humidity processes in multilayer structures in the annual cycle of operation and make payments possible condensation for each month of the year.

Keywords: *temperature and humidity, envelope, condensation, operation.*

UDC 697.12/14:725.963

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ANALYSIS OF THE ENERGY EFFICIENCY WALL CONSTRUCTIONS IN RELATION TO THEIR ARCHITECTURAL CONSTRUCTIVE PECULIARITIES

The problem of rational inquiry, which has already acquired global significance as the main reason for the number of homes imperfect architectural solutions in the construction of inefficient use of construction materials and obsolete types of engineering systems currently do not meet the requirements of energy conservation is considered.

Keywords: *energy efficiency, enclosing structures, the temperature field.*

UDC 621.8.036:631.223

V.I. Hazin, PhD, Professor
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MODERN PROBLEMS SOFTWARE REGULATION AND INSULATION PERFORMANCE ENCLOSING S TRUCTURES LIVESTOCK BUILDINGS

The features and the current state of regulation heatproof ability walling livestock buildings, formulated a set of measures to conserve heat in the design, operation and reconstruction of these buildings.

Keywords: *insulation capacity, building envelope, livestock buildings, measures to save and thermal energy.*

UDC 531.01:624.01-42:004.94

O.M. Tcherevko, PhD, Associate Professor
D.V. Usenko, student
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THREE-DIMENSIONAL VISUALIZATION OF LOADS ON THE CONSTRUCTION OF COMPLEX SHAPE

This paper was written for study of behavior of the building during seismic activity. Had been created a system of mathematical models that describe visualize and predict the state of the building during the earthquake. This model can be used as an aid in the initial phase of construction.

Keywords: *design of complex shape, stress imaging, three-dimensional model, beam frame.*

UDC 691:620.1

V.V. Shul'hin, PhD, Associate Professor
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PROBABILISTIC PRESENTATION OF HEAT INSULATION MATERIALS SPECIFICATIONS

Thermal conductivity coefficients of polystyrene and mineral wool are presented in the form of random variables with normal distribution, their statistical properties and design values have been obtained, based on the results of testing dozens of samples.

Keywords*: thermal conductivity coefficient, statistical properties, distribution laws.*

UDC 621.43.011

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RESEARCH OF VERTICAL VIBRATIONS DYNAMICS OF THE TOW TRUCK WITH ACCOUNTING THE ADDITIONALLY SUBSPRINGY CARGO INFLUENCE

In the given article a mathematical model of an tow truck movement is developed for the purpose of the investigation and analysis the dynamic processes taking place during the movement, as well as the oscillation of the car that is elastically established on a platform of the tow truck.

Keywords: *tow truck, dynamic processes, oscillations, platform.*

UDC 69.056.55.057:728

L.G. Sherbinin, PhD, Associate Professor
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CONSTRACTION OF MONOLITIC FRAME RISE RESIDENTIAL AND PUBLIC BUILDINGS IN COMPRESSED CONDITIONS WITHOUT USING OF CRANES

The problem of building in compressed conditions is considered in this article. The effective solutions in this case are frame-monolithic building. The basic information about the device monolithic slabs, walling installation, construction machinery and equipment are presented.

Keywords*: frame-monolithic building, wooden decking, stable, concrete, mast lifts.*

UDC 69.059.25

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THE PRINCIPLES OF RECONSTRUCTION OF SILO HOUSINGS OF BY-PRODUCT COKE PLANT IN RESTRICTED CONDITIONS OF OPERATING INDUSTRIAL ENTERPRISE

The article deals with the basic principles of organizational and technological preparation for reconstruction of building of objects of an industrial enterprise. The influencing factors on the choice of the scheme of reconstruction of the object are identified and considered.

Keywords: *reconstruction, silo housing, restricted conditions, complex mechanization.*

UDC 69.057.5+624.075

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APPLICATION OF PERMANENT FORMWORK FOR PILLARS IN THE CONSTRUCTION OF FRAME BUILDINGS

Results of studies of application of permanent formwork in construction of monolithic columns frame building. Compares on the main technical and economic indicators.

Keywords: *permanent shuttering, installation, concreting, labour input.*

UDC 627.21.001.63

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INTERACTION OF BREASTING AND MOORING DOLPHIN STRUCTURES WITH ANISOTROPIC SOIL FILL

Calculating methods for determination of anisotropic discrete medium lateral pressure on closely spaced fences and walls of buildings are not developed enough. Among such objects are filling dolphin structures of sea berths, warehouses and silos for the storage and transport of bulk discrete medium, etc. buildings, where construction walls are placed at a close distance.

Keywords: *anisotropy, discretemedium, lateral pressure, closespacedwalls*

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