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**THE PRACTICE OF INNOVATIONS IN CITIES AND URBAN PLANNING AND DEVELOPMENT DOCTRINE**

*The work considers the current practice of innovation in cities from the perspective of the Doctrine of Urban Planning developed in Russian Academy of Architecture and Construction Sciences. Examples of realization of specific projects and programs on the development of cities and data on the achievement of targets and indicators of the programs are analyzed from the point of the conception of biosphere compatible urban development. It is shown that such eco-philosophy approach to the relationship between human and nature challenges the current practice of urban planning and well established world-view of the city as of the socio-economic formation independent of the natural environment. The issues relating to a new urban planning policy are now under review.*

***Keywords****: urban development, innovation, program development, strategic planning, biosphere compatibility, living environment, human potential, the functions of a city, safety, comfort.*

A.V. VASILYEV, I.V. YARMOSHENKO, M.V. ZHUKOVSKY

**INDOOR RADON HAZARD IN MODERN MULTI-STOREY BUILDINGS**

*Energy efficient technologies that minimize heat losses in modern multi-storey buildings cause potential problems for protection against indoor radon. According to the results of the radon survey conducted in the city of Ekaterinburg (Russia), radon concentration in dwellings constructed with the use of energy efficient technologies exceeds the longtime average level. Further implementation of energy efficient technologies considerably increases average exposure. Thus, increase of lung cancer mortality in the city of Ekaterinburg is expected. Heat losses minimization in modern multi-storey buildings by means of sealing and other construction technology will improve energy efficiency only at the expense of population adverse impact on indoor exposure to radon and risk of lung cancer.*

***Keywords:*** *radon, energy efficient technologies, building materials.*

A.M. KUZMITSKI, A.V. NIKIFOROV, A.V. IVANOV

**EVALUATION OF ACOUSTIC IMPACT ON RESIDENTIAL AREAS**

**WITH THE HELP OF THE AWS"ACOUSTICS" 3D SOFTWARE**

**PACKAGE**

*As a tool for solving the problems of protection of the population from noise, a specialized AWS "Acoustics” 3D program is considered, which provides for conducting acoustic calculations and their detailed documentation on the premises and inside of the buildings in accordance with the current regulatory framework of the Russian Federation.*

*The program allows for the performance of three-dimensional modeling of uneven terrain with any degree of detail, including arbitrary forms of urban development, the internal floor-by-floor structure of buildings, as well as complex road networks with multi-level interchanges, bridges, flyovers and separation walls.*

*Acoustic impact calculation results are presented in the form of noise maps, 3 dimensional surfaces and vertical sections. Detailed tabular report with formulas and references to the normative documentation showing the contributions of all factors affecting the distribution of noise is performed.*

*The program has advanced features for configuring the parameters of acoustic calculation, visualization and printing of text and graphic materials.*

***Keywords:*** *3D-modeling, calculation programming, noise protection.*

V.P. GUSEV, V. I. LEDNEV, I.L. SHUBIN

**PROTECTION OF THE ENVIRONMENT FROM NOISE**

**EXPOSURE EQUIPMENT HVAC SYSTEMS**

*Submitted published a handbook designed for acoustic calculations air heating systems, ventilation, air conditioning (HVAC), and are found based on the experience to ensure you optimal in terms of acoustics and noise protection Economics of HVAC equipment in the buildings of various destination and in the urban environment.*

***Keywords:*** *ventilation, air conditioning and air heating, acoustic calculation means for reducing noise.*

T.F. ELCHISHCHEVA

**ASSESSING THE IMPACT OF THE QUALITY OF THE AIR BASIN IN TAMBOV ON THE EXTERIOR BUILDING ENVELOPE**

*The impurity of the polluting substances containing in air of occupied places, have negative impact on the nature and the person, and also external protecting designs of buildings and constructions. In work the analysis of the content of polluting substances in air of Tambov from 2008 for 2012 is given. The look and amount of polluting substances are established, the card of their distribution on the city territory is provided. Values of an index of pollution of the atmosphere for separate substances and a complex index of pollution are defined. Excess of maximum permissible concentration of the content in air of the strong weighed substances and carbon oxide (II) is revealed. It is shown that from 2003 to 2012 in the territory of the city a slabokislotny precipitation with the average level of a hydrogen indicator 5,85 dropped out.*

***Keywords:*** *сontaminants, acid precipitation, exterior building envelope, the maximum allowable concentration.*

A.A. SMORCHKOV, D.A. ORLOV, K.O. BARANOVSKAYA, S.V. DUBRAKOV

**BIOPOSITIVE ELEMENTS FOR WOODEN HOUSING CONSTRUCTION**

**FROM WOOD WASTE**

*In article application of a biopositive material of the wood concrete made of waste of a woodworking, in low housing construction is considered. The original design of the wall block from wood concrete with a solar collector is offered. Its strength properties theoretical and experimental are defined by ways.*

***Keywords:*** *wood concrete, wall block, solar collector, wood concrete durability.*

TOLSTOY M. YU., BELOOKAYA N.V., TROFIMENKO E.M., VASILYEVA A.A.

**CREATION OF THE COMBINED MOBILE INSTALLATIONS AND**

**DEVELOPMENT OF TECHNICAL SOLUTIONS ON WATER**

**TREATMENT AND WATER PURIFICATION, INCLUDING AT**

**ELIMINATION OF CONSEQUENCES OF EMERGENCY SITUATIONS**

*Creation of the combined mobile installations and development of technical solutions is presented in the report on water treatment and water purification, including at elimination of consequences of emergency situations and modeling of the rotating pneumatichydraulic aerator on the basis of the hydrodynamic conditions arising at interaction of liquid and air in aeration system*

***Keywords:*** *purification, hydrodynamic forces, aerator*

A.S. VANYUSHKIN

**THE PERSPECTIVE DIRECTIONS FOR DEVELOPMENT OF THE**

**SOURCE OF RAW MATERIALS OF CONSTRUCTION BRANCH IN THE**

***CRIMEA***

*In this article perspective directions of use of building raw materials Crimea, in particular, clays for production of ceramic facing tile and marble limestone and diabase as a natural finishing materials; identified the possibility of replacing the field spars and pegmatites are absent in the Crimea, on borosilicate glass, which can be produced with the use of datolite mineral deposits which are in Crimea; proposed for the reduction of tion cost of mining marble-like limestone and diabase in Crimea switch to cutting technology stones blow through a device like a diesel hammer, with the modular design of the organization to – bran chisel.*

***Keywords:*** *building raw materials, clay, ceramic tile, marble-like limestone, dolerite, technologies of stone processing.*

N.M. IGNATENKO, G.A. MELNIKOV, E.N. CHERKASOV

**THE ANALYSIS OF QUALITY OF WATER AND LIQUID SYSTEMS IN CLUSTER MODEL BY IR-SPECTROSCOPY METHODS IN DISTANT AREA OF A RANGE**

*In this article, we justify the authors analyze the properties of the physical principles and the quality of pure water and water containing small impurities of organic hydrocarbons by IR spectroscopy in the far field range 10 - 300 cm-1. In the investigated frequency range position of the spectral bands defined by the configuration and the energy of formation of dimeric molecules in the fluid systems. The investigation of possible dimer formation in pure water, liquid benzene and toluene in the various computer models. Highlighted several major dimer configurations in liquid benzene and toluene: L-shaped, S-(s–parallel) and T-configuration in the cluster model obtained value for predicting the position of the spectral bands based on the calculation of the number of particles in the most stable cluster formations. Pure water are evidence of theoretical calculations of frequencies in the IR spectrum and comparison with experimental data.*

***Keywords****: cluster model, IK-spertroskopiya, structure of liquid, water, education enthalpy, dimer.*

A.T. DVORETSKY

**INFLUENCE OF SOLAR RADIATION ON THE DURATION OF THE HEATING PERIOD AND THE PERIOD OF COOLING OF BUILDINGS IN CRIMEA**

*Solar power in the Crimea has a great potential and has a significant impact on the climatology of accommodations. The feature of the Crimean climate is the following: the hot period (250C in hot five days) and cold period (-180C in cold five days).*

*The article explains the necessity of taking into account the solar energy coming through the translucent structures for heating of a building during the cold period. At the same time, due to the "solar architecture" of the building, the heating period, depending on the architecture, with six and a half months is reduced to five. For the hot period of the year the energy savings in cooling of a building is provided due to shading devices, in connection with this conditioning period of a building is reduced from four months to two.*

*Climatic conditions of the Crimea dictate specific approaches to the design of buildings for the purpose of cooling and heating. These approaches should be fixed in the Crimean regional standards for the design of energy efficient buildings. The main share of cooling the building should be attributed to its architecture that significantly reduces the cost of electricity for air-conditioning. The most effective way to protect the building from overheating is shading devices.*

***Keywords:*** *energy efficiency, solar radiation, the heating period, the period of cooling, shading devices.*

E.V. SHCHERBINA, M.I. AFONINA

**SOME QUESTIONS OF ENSURING ECOLOGICAL SAFETY OF OBJECTS OF A RECREATION AND SPORTS**

*The problem of ensuring ecological safety of objects of a recreation and sports as making life support system of municipal economy is considered. Results of monitoring of a mountain-skiing complex in the territory Moscow are given.*

***Keywords:*** *ecological safety, city ecosystem, objects of a recreation and sports, ecological factor, geoenvironmental monitoring.*

A. Е. MAKSIMENKO

**FEATURES OF THE USE OF LIGHTING IN DYNAMICS TO DETERMINE SCULPTURAL FORMS**

*Light, and the color - a powerful means of sculpture. The treatment of light only good when it is associated with the content of the sculptural works, its concept, composition, and all the artistic means.*

***Keywords:*** *light in architecture, a sculpture, dynamics light.*

Z.I. IVANOVA

**EARTH AS A CENTER OF BIOSPHERE IN AXIOLOGICAL ASPECT**

*Inthearticletheauthorinvestigatesthereasonsofhuman conscious deterioration in relation to the Biosphere, the Earth. Theauthorappealstoreligiousmyths, legendsand folksayings in order to show the value of the Earth in traditional cultures of different nations. IsittodaypossibletorecoverthevalueoftheNatureand the Earth? Accordingtotheauthor’sopiniononlyourreturntoorigin(traditions) on reflexive level, refocusing our conscious on treating the Earth as a living substance, which demands attention and help, can prevent human from destroying the Biosphereand him or herself.*

***Keywords:*** *Biosphere, Earth deity, traditional values, conscious deterioration, alienation fromlabor.*

A.G. BULGAKOV, T. BOCK, N.S. BUZALO, S.G. EMELIANOV,

P.A. ERMACHENKO

**BIOSPHERIC ENERGY-INDEPENDENT HUMAN SETTLEMENTS**

*Energy-efficient waste-free settlements on the basis of autonomous life support systems are similar in its architectural and engineering solutions to space stations, which are designed for the settlement of the Moon and Mars. Development of biospheric energy-independent human settlements is of global significance for the inhabitants of our planet.*

***Keywords:*** *ecosettlement, energy efficiency, smart biomechatronic system.*

Z.S. NAGAEVA, L. A. BUJUROVA , E.S. KERIMOV

**HISTORIC FEATURES AND MODERN ASPECTS OF THE**

**DEVELOPMENT OF ARCHITECTURE IN THE CRIMEA**

*In this article the purpose to carry out the short analysis and to reveal traditions and continuity in architecture of the Crimea, since ancient centuries and at the present stage is set. According to the purpose the tasks are set: to give the characteristic of objects of architecture in historically developed cities of the Crimea; to reveal traditional features of architecture in various regions; to reveal the list of construction objects; to give the characteristic to modern architectural constructions in the Crimea. The material of article is a contribution to those new researches which need to be carried out in the direction of studying of tradition of building in the Crimea.*

***Keywords:*** *activity environment, architectural monuments, characteristic receptions in town planning and architecture.*