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Contents

E.L. BELYAEVA

FEATURES OF BEAUTIFICATION OF NATURAL AND LANDSCAPED AREAS WITH A SPECIAL STATUS AND REGIME OF USE. PART II. URBAN ENVIRONMENTAL REQUIREMENTS FOR THE PROJECT AND THEIR IMPLEMENTATION PART II. URBAN ENVIRONMENTAL REQUIREMENTS FOR THE PROJECT AND THEIR IMPLEMENTATION

The analysis given in Part I of this article, carried out on the example of the project for the improvement (reconstruction of improvement) of the Rozhdestveno recreation area in the Mitino municipality in Moscow in 2019, showed that in projects carried out for areas with the status of protected areas, it is precisely at the stage of extended pre-project studies, full-scale surveys, carrying out factorial engineering and environmental surveys (relief, landscape, hydrology, geology, hydrogeology, soils, flora and fauna), and subsequently - based on the results of a comprehensive assessment of the state of objects and territories and the value of natural objects and complexes, urban planning requirements for spatial - planning organization of the territory, to functional zoning, to engineering equipment, constructive, technical, architectural and aesthetic solutions and improvement technologies. In addition, a list of requirements and measures for environmental protection at the stages of construction and operation, as well as a list of environmental requirements for environmental monitoring is being formed.

***Keywords**: landscaping; reconstruction; status and regimes of protected areas; environmental requirements; safety; valuable natural objects and complexes; Red Book species; pre-project surveys; design methodology.*

O.V. ASTAFIEVA

BEST AVAILABLE TECHNOLOGIES AS AN EFFECTIVE WAY TO MINIMIZE THE NEGATIVE ENVIRONMENTAL IMPACT: IMPLEMENTATION PRACTICE

The article analyzes the practice of introducing the best available technologies, which are an instrument of environmental and industrial policy aimed at stimulating enterprises and organizations to reduce the negative impact on the environment.

The features of the application of the best available technologies are considered on the example of the Kachkanar Mining and Processing Plant of the EVRAZ Group (JSC EVRAZ KGOK), whose individual technological processes belong to the critical technologies of the Russian Federation. The enterprise carries out its production activities on the territory of the Sverdlovsk region and is the only enterprise in the region from the list of "300" that received a comprehensive environmental permit at the end of 2021. A list of technologies used at the plant in the open-pit mining of iron ores is given as the best available.

The list of objects of economic activity of the Sverdlovsk region has been determined, which will be the first to be obliged to carry out the modernization process based on the best available technologies and obtain comprehensive environmental permits that replace the package of environmental approvals.

The rates of issuing integrated environmental permits, which are "verifiable" indicators of the introduction of the best available technologies, both in the region and in the country as a whole, are estimated.

It is noted that Russian business has the opportunity to use the existing international experience in the introduction of BAT, as well as the still small, but already existing results of work in this direction by a number of Russian enterprises.

***Keywords**: best available technologies; negative impact; environment; environmental policy; regulation; integrated environmental permit*

G.A. PTICHNIKOVA, A.V. ANTYUFEEV

GENTRIFICATION OF DEPRESSIVE POST-INDUSTRIAL COASTAL TERRITORIES OF CITIES AS AN ARCHITECTURAL RENEWAL

The process of architectural renewal of the city is one of the conditions for sustainable urban development. The regeneration of post-industrial depressive territories is one of the indispensable measures of urban revival. One of the current trends in modern urban development is the process of gentrification, which is understood as a complex transformation of the urban environment of decaying and cheap areas. Gentrification has both positive and negative consequences associated with the deepening of the social polarization of urban spaces. In the architectural aspect, the attractiveness of the transformed areas entails the loss of originality and individuality of local architecture. In the article, the features of the gentrification process are revealed on the examples of European cities. Approaches to the gentrification of the coastal post-industrial territories of Russian cities are also determined on the example of Volgograd. The results of the study are the definition of gentrification approaches in architectural design in former industrial areas in coastal areas.

Keywords: *gentrification; architectural conversion; renovation; post-industrial cities; coastal depressions; industrial buildings.*

Funding: *The research was carried out within the framework of the Program of Fundamental Scientific Research of the Russian Academy of Architecture and Building Sciences and the Ministry of Construction and Housing and Communal Services of the Russian Federation for 2022.*

N.V. LAZAREVA, A.YU. ZINOVIEV

FORMALIZED DESCRIPTION OF THE DECISION-MAKING PROCEDURE BASED ON INFORMATION MODELS WITHIN THE FRAMEWORK OF CONSTRUCTION AND TECHNICAL EXPERTISE

This article notes that the complication of technical and managerial tasks of investment, construction and operational activities leads to an increase in conflict situations at all stages of the life cycle of a capital construction object, the resolution of which is possible with the help of construction and technical expertise. In turn, the objectivity and adequacy of the latter is achieved through the use of information models of capital construction projects. In this regard, the purpose of the study is to substantiate the decision-making procedure within the framework of construction and technical expertise based on information models, and its tasks can be defined: to establish the structure and composition of the object of expertise, its characteristic features, a formalized description of the decision-making procedure. The practical significance of the study is associated not only with increasing the transparency of decisions made within the framework of construction and technical expertise, but also their effectiveness, determined by reducing the cost and duration of these activities through the use of information models of capital construction projects and related innovations such as augmented reality, 3D visualization and 3D scanning, the use of drones in setting the scope of work, etc. The noted formulation of the study and its features determine the novelty of the scientific search performed and the formation of a significant reserve in the chosen subject area.

Keywords: *informatization, information model, capital construction object, construction and technical expertise.*

T.I. STEPANENKO, N.V. SAVENKOV

EVALUATION OF THE INDICATORS OF THE HYDRODYNAMIC OPERATING MODE OF INDUSTRIAL CLARIFIERS

The main reasons for the deterioration of the ecological state of surface water bodies in the Donetsk region are the insufficient number of treatment facilities, their unsatisfactory technical condition, the low level of operating efficiency of existing treatment facilities, a limited number of circulating water supply systems, the emergency state of a significant part of water supply and sewerage networks, etc.

In this paper, we consider the factors that affect the efficiency of water treatment. The results of the theoretical studies carried out made it possible to identify some factors: the hydrodynamic mode of operation of the treatment plant, the pH value of the medium, the dose of the coagulant, the degree of hydrolysis of the coagulant, and the concentration of suspended particles. Indicators of the hydrodynamic mode of operation of clarifiers have a significant impact on the concentration of pollutants in treated water. Due to the high values of the Reynolds criterion (Re), when high-capacity devices are used in the technological scheme of water purification, an increased content of pollutants occurs at the outlet. An increase in the Re criterion leads to an increase in the Peclet criterion, which characterizes the longitudinal mixing and deviation of the settling tanks from the ideal displacement mode and, accordingly, to an increase in the "leakage" of pollutants into the treated water.

The conducted studies allowed the authors to propose a methodology for experimental evaluation of the quality of reagent mixing in treatment facilities. Improving the quality of mixing the reagent with treated water can be achieved by using the method of concentrated coagulation. A technique has been developed for evaluating the efficiency of the treatment equipment by determining the indicators of the hydrodynamic regime. This will improve the environmental safety of the water used with minimal economic costs, which is profitable for most enterprises in the region.

Keywords: *hydrodynamic regime; clarifier; ideal displacement; ideal mixing; tracer; indicator substance; reagent.*

O. V. YANTSEN, E.S. GOGINA

PROMISING METHODS FOR WASTEWATER TREATMENT IN TOURIST AREAS

Currently, the issue of wastewater disposal and treatment in tourist areas is acute. The quantitative composition of the population in resort settlements can increase by 2 times, and in suburban settlements and garden associations can have an exclusively seasonal character at all, when the number of the population tends to zero at certain times of the year or under adverse weather conditions.

Such features leave an imprint on the drainage system as a whole and make it impossible to use classical technological solutions. The experience of operating small wastewater treatment plants operating in seasonal conditions has shown high instability of biological systems. Studies show the feasibility of using immobilized biomass in conditions of periodic wastewater intake.

At the peak of the tourist season, in order to comply with the required quality of water purification, it is necessary to quickly put the facilities into operation. The proposed solution will allow achieving the quality of purified water in the shortest possible time, which means it will reduce the cases of eutrophication of reservoirs. The use of local wastewater treatment plants, which include biofilters operating in the nitrification-denitrification mode, will minimize the risks of dumping untreated wastewater into reservoirs in areas with a periodic nature of wastewater.

Keywords*: biofilter; wastewater treatment; tourist areas; biological wastewater treatment.*

O. V. VOLICHENKO

METHODS OF ECOLOGICAL DESIGN OF RESIDENTIAL BUILDINGS ON THE EXAMPLE OF THE CITY OF BISHKEK

The article deals with the problems of the deterioration of the environmental situation in Kyrgyzstan, dwelling on the analysis of the environmental situation in Bishkek, the capital of the republic, in which the indicators of the state of pollution are the highest and most critical in comparison with other settlements. Architecture a priori has a harmful effect on nature. Therefore, the main task of architects is to strive to minimize the negative impact and at the same time create the most comfortable environment for various activities. The theses of the pioneers of ecoarchitecture P. Soleri, F. Hundertwasser and those who continue to develop the basic design principles that focus on environmental values are considered and analyzed. The purpose of this study is to develop eco-design practices and principles for the region.

Bishkek, located in the north of Kyrgyzstan, is characterized by a sharply continental climate with dry, sultry air and high temperatures in summer (absolute maximum - 43 degrees) and high humidity and low temperatures (absolute minimum - 30 degrees). The characteristics of the main indicators for creating the most favorable object-spatial environment (noise protection, water reclamation, air recirculation, landscaping) of a medium-rise residential building are given, based on the principles of eco-architecture design.

Keywords*: ecology; eco-architecture; design methods; noise protection; water reclamation; air recirculation; landscaping*