

LIFE CYCLE MANAGEMENT OF CONSTRUCTION FACILITIES

DEVELOPMENT OF THE ORGANIZATION OF EARTHWORKS BY STRENGTHENING GEOTECHNICAL FUNCTIONS IN BIM

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The article highlights the problem of the development of the organization of earthworks due to the strengthening of geotechnical functions in the BIM system. The influence of this problem on the organization of construction and operation of a real estate object is investigated. The influence of geotechnical functions on the operation of a BIM-system is investigated. The experience of scientists on the implementation and implementation of these functions of the BIM-system is considered. The possibility of using BIM in deep-laying and mining facilities is considered. Further ways of development are considered. The functions of existing information systems for geotechnical surveys and the probable functions when they are implemented in a BIM system with integrated geotechnical modules are compared. The analysis of the experience was carried out, during which the construction of a table with the organization and technology of geotechnical work and the capabilities of BIM geotechnics was carried out. Based on the analysis, recommendations were formed to improve the life cycle management of a real estate object in a BIM environment with integrated geotechnical functions. The recommendations are made taking into account the expediency of application, depending on the type of object, the complexity of the excavation technology used, the degree of influence of geotechnical factors on the life cycle of the real estate object. The recommendations are presented in the form of a matrix table, on the basis of which the general contractor will be able to make a decision on the choice of excavation technology, structures of the underground part of the building and ensure their defect-free and rhythmic production.

Keywords: object life cycle, geotechnical works, BIM, construction organization, numerical modeling, geotechnical modules

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TECHNOLOGY AND ORGANIZATION OF CONSTRUCTION

RESEARCH OF WELDING MATERIALS FOR WELDING HEAT-RESISTANT STEELS IN THE CONSTRUCTION OF NUCLEAR POWER PLANTS

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The influence of the choice of materials in the design and construction of industrial facilities is studied, taking into account the main parameters of metal structures - reliability and durability.

The results of studies of welded metal structures made of heat-resistant steel 12XM, intended for the manufacture of building structures, pipelines, parts and elements of equipment of nuclear power plants, are presented.

Studies of welding and technological properties of welding materials, chemical analysis of the deposited metal, mechanical tests of the weld metal, as well as metallographic studies of welded joints were carried out.

Keywords: construction, nuclear power plants, life cycle, metal structures, reliability, durability, automatic welding, mechanical testing, metallographic studies

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GUINTCREATING: HISTORY AND WAYS OF TECHNOLOGY DEVELOPMENT

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In the course of the work, a historical review of the invention and formation of types of plaster mixtures, as well as the formation of shotcrete technology, was carried out. An analysis of the recipes and main methods of applying the gunite mixture was carried out. The advantages of this technology compared to other classical coatings have been studied. The prospects for further development of technologies related to plastering of enclosing structures are analyzed.

Keywords: shotcrete, history of plaster, cement hydration, kinetic energy, adhesion, strength of shotcrete, methods of casting a cement-sand mixture, dry and wet shotcrete

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URBAN PLANNING, PLANNING OF RURAL SETTLEMENTS

THE MAIN ASPECTS OF ENSURING THE FUNCTIONAL EXPRESSIVENESS OF THE CHILDREN'S LEISURE CENTER IN THE ARCHITECTURAL DEVELOPMENT OF THE CITY OF RYLSK, KURSK REGION

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This article analyzes the basic principles of ensuring the compositional and spatial expressiveness of buildings of children's leisure institutions.

The choice of spatial, functional-planning and color solutions is justified. The main architectural and structural prerequisites for ensuring energy efficiency are made through the calculation of the compactness index. Sketch designs of the color scheme of a public building are given.

Keywords: leisure center, functional expressiveness, shaping in architecture, architectural and compositional solution, spatial planning solution, energy efficiency, compactness index, architectural environment, color passport

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THE CONCEPT OF RURAL TOURISM ON THE EXAMPLE OF THE VILLAGE OF VESHALOVKA, LIPETSK REGION

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Based on an analysis of current trends, concepts for creating a comfortable environment in the field of rural tourism in the recreational space of the left bank zone of the city of Voronezh are proposed.

An analysis of the recreational potential of the village and the excellent functional and decorative core - the Kozhin estate in the center of the village - is given.

The concept of a tourism product based on an architectural heritage monument with "viewing" routes, infrastructure facilities, a navigation system, historical and cultural information proposed by the authors is presented.

Keywords: rural tourism, countryside, agrotourism, ecotourism, service, resources.

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ENVIRONMENTAL SAFETY OF CONSTRUCTION AND URBAN ECONOMY

USE OF A COMPLEX MULTILAYER PLATE RECUPERATOR FOR UTILIZATION OF HEAT FROM VENTILATION EMISSIONS

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At present, the urgent task is to reduce fuel consumption and increase the efficiency of heat generation and utilization processes.

The article considers one of the options for saving fuel consumption, which consists in the use of low-potential heat of ventilation emissions from industrial and residential buildings by its utilization in a multilayer plate recuperator, in which there is an intensive turbulization of air flows.

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Keywords: recuperator, utilization, heat transfer, thermoelectricity, intensification.

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SYSTEM ANALYSIS, MANAGEMENT AND INFORMATION PROCESSING (IN CONSTRUCTION AND ARCHITECTURE)

ANALYSIS OF LONG-TERM ENERGY CONSUMPTION IN THE RESIDENTIAL SECTOR USING LSTM MODELING

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The importance of electricity consumption is undeniable for the daily life and economic dynamics of any country. The central theme of this research is to develop a deep understanding of residential energy consumption trends and to create and validate a long short-term memory (LSTM) model to predict long-term energy loads.

Using statistics from the International Energy Agency, this study analyzes consumption data from 1990 to 2020, revealing fluctuations in overall electricity consumption and a marked decline in the residential sector over the past decade. The document highlights the role of the residential sector as a key element in the energy mix, highlighting its contribution to national energy trends.

The LSTM model is proposed as a way to improve forecast accuracy, which in turn can contribute to more efficient planning and management of energy infrastructure.

Keywords: energy consumption, long-term forecast, neural networks.

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CONSIDERATION OF EXTERNAL AND INTERNAL ENVIRONMENT FACTORS IN STRATEGIC PLANNING AS A VECTOR OF DEVELOPMENT OF THE CONSTRUCTION INDUSTRY

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This article discusses the general concept of external and internal environmental factors, as well as provides examples of their influence on the organization and interaction with each other, which gives an unambiguous answer to the question of the importance of taking them into account when planning activities by the managing link. The result of this process is based on strategic planning, which is fundamentally important for the existence of construction organizations.

Keywords: construction, management, external factors, internal factors, strategic planning, system.

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ASSESSMENT OF THE COMPETITIVENESS OF BUILDING PRODUCTS USED FOR THE CONSTRUCTION OF PARTITIONS IN PUBLIC BUILDINGS

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This article provides an analysis of the regional market of building products used in the construction of interior partitions, competing enterprises and the results of an assessment of competitiveness, which is based on a methodology for comparing the consumer properties of competing products and their relative prices.

Products made of aerated concrete, arbolite, foam concrete, as well as silicate and gypsum grooved slabs are considered.

According to the results obtained, cellular concrete products are the leader in terms of competitiveness.

Keywords: partition, blocks, design, competitiveness of building materials, evaluation method

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