

Contents

2015
5(52)
october

**Bulletin
of Civil
Engineers**

ARCHITECTURE, URBAN PLANNING, DESIGN

- A. G. Bol'shakov, A. A. Anufriev.* Interrelation of social aspects and spatial and geometric features when studying the city squares.....5
T. Werner. Avant-garde architecture and the World Heritage.....18
S. S. Dukhanov. Regional planning features of garden cities in Western Siberia.....22
M. V. Zolotareva. Formation stages of Saint-Petersburg center in the works of artists in the XVIII–XIX centuries.....30
B. L. Krundyshev. Expert evaluation criteria of residential environment taking into account of the "architectural gerontology" requirements.....40
L. P. Lavrov, F. V. Perov. Development from shopping centers to public centers.....46
O. A. Pastukh. Constructivist architecture in the city of Tula.....55
S. V. Sementsov. Territorial formation of Saint-Petersburg province during the reign of Peter I as the basis of formation of the capital city of Saint-Petersburg: 1703–1711.....62

BUILDING DESIGNS

- L. S. Sabitov, I. L. Kuznetsov, I. Z. Gatiyatov, I. N. Khamidullin.* The technique and results of testing the bearing capacity of supports at the IS-1 special stand.....70
D. A. Semenov. Strength of reinforced concrete members under axial compressive force and biaxial bending.....76

STRUCTURAL MECHANICS AND CALCULATION OF STRUCTURES

- E. D. Golub, E. V. Zaitsev.* Main pipelines inspection with intra pipe shells of magnetic defect detectors.....85

GEOENGINEERING

- R. A. Mangushev, E. B. Lashkova, V. Yu. Smolenkov, M. A. Zaytsev.* Experience of building underground parking lots in the conditions of weak soils of Saint-Petersburg.....91
A. A. Tarasov. Application of the static penetration test results to calculate the bearing capacity of injection piles in soft clay soils.....101
S. V. Yushchube, V. A. Sulima. Control of the bearing capacity of piles submerged into clayed soil by indentation method.....105

TECHNOLOGY AND ORGANIZATION OF CONSTRUCTION

- A. G. Kopanskiy.* The study of the parameters of the technological process providing a high degree of permeability of filters in water supply wells.....110
S. A. Sychev. Alternative projecting technique of technologies for erecting buildings and structures from prefabricated modules.....119

BUILDING MATERIALS AND PRODUCTS

- M. S. Zakurazhnov, O. V. Artamonova, E. I. Shmitko.* Effective modifying of cement paste curing systems using activated microsilica.....126
E. A. Korotkov, K. S. Ivanov, K. V. Butakova, K. A. Chinilina, A. A. Melnikova. "DiatomIK" construction materials, a new cost-effective solution for low-rise construction.....133
V. A. Lisenko, I. D. Mulyar. Optimization of the technology of oil barrier poly-composite coatings on reinforced concrete structures.....139
V. I. Loganina, M. V. Frolov. Fine dispersion filler based on calcium silicates for lime mixes.....144
O. S. Tatarintseva, A. V. Litvinov, V. V. Firsov, A. N. Blaznov. Modeling of the melting process of basalt charge in an induction crucible.....148
S. M. Auta, A. J. Shiwua, T. Y. Tsado. Effect of revibration on the compressive strength of concrete with rice husk ash as partial replacement for cement.....156

SANITARY ENGINEERING AND ECOLOGY

- L. V. Belova.* Substantiation and experimental investigation results of carbon dioxide desorption process from subsoil water in a baffled degasifier.....163
M. A. Kanev. Numerical simulation of heat and humidity processes in administrative premises in the conditions of northern climate.....171

Scientific-technical journal

The Founder — the Federal State Budgetary Educational Institution of Higher Vocational Education "Saint-Petersburg State University of Architecture and Civil Engineering" (SPSUACE)

The Editor-in-Chief

Ye. I. Rybnov, Dr. Sci. Ec., Professor, Honorary Worker of Higher School of the Russian Federation (SPSUACE)

Assistants to the Editor-in-Chief

Yu. P. Panibratov, Dr. Sci. Ec., Professor, Winner of the State Award of the Russian Federation and the Award of the Government

of the Russian Federation, Honorary Worker of Sciences of the Russian Federation, Academician of RAACS (SPSUACE)

Ye. B. Smirnov, Dr. Sci. Ec., Professor, Honorary Worker of Higher School of the Russian Federation (SPSUACE)

V. I. Morozov, Dr. Sci. Tech., Professor, Winner of the Award of the Government of the Russian Federation (The Senior Editor) (SPSUACE)

Editorial council

A. A. Akaev, Dr., Prof., Foreign Member of the RAS (Lomonosov Moscow State University, Russia)

L. Ungvari, Dr. Sci., Professor, (Technical University of Applied Sciences Wildau, Germany)

N. V. Kazhar, Dr. Arch., Professor (Częstochowa University of Technology, Poland)

G. Kipiani, Dr. Sci. Tech., Professor (Georgian Technical University, Georgia)

H. V. Tokmajyan, Dr. Sci. Tech., Professor, Rector of SEUA (State Engineering University of Armenia)

J. Eberhardsteyner, Dr. Sci. Tech., Professor (Vienna University of Technology, Austria)

S. N. Leonovich, Dr. Sci. Tech., Professor (Belarusian National Technical University, Belarus)

Y. Iwasaki, Dr. Sci. Tech. (Geo-Research Institute, Japan)
T. Tanaka, Dr. Sci. Tech., Professor (University of Tokyo, Japan)

H. I. Ling, Professor (Columbia University, USA)

A. Zh. Zhusupbekov, Dr. Sci. Tech., Professor (L. N. Gumilyov Eurasian National University, Astana, Kazakhstan)

Editorial Board

G. V. Yesaulov, Dr. Arch., Professor, Academician of RAACS

Yu. V. Zaytsev, Dr. Sci. Tech., Professor, Winner of the Award of the Government of the Russian Federation, Extraordinary and Plenipotentiary Ambassador
F. V. Karmazinov, Dr. Sci. Tech., Professor, Winner of the Award of the Government of the Russian Federation (SUE "Vodokanal of St. Petersburg")

N. I. Karpenko, Dr. Sci. Tech., Professor, Winner of the Award of the Government of the Russian Federation, Honorary Worker of Sciences of the Russian Federation, Academician of RAACS (NIISF RAACS)

L. S. Lyahovich, Dr. Sci. Tech., Professor, Honorary Worker of Sciences of the Russian Federation, Academician of RAACS (TSUAB)

V. Sargsyan, Dr. Sci. Tech., Professor (National University of Architecture and Construction of Armenia)

V. I. Travush, Dr. Sci. Tech., Professor, Winner of the Award of the Government of the Russian Federation, Academician of RAACS (RAACS)

V. S. Fedorov, Dr. Sci. Tech., Professor, Academician of RAACS (MSURE)

S. V. Fedosov, Dr. Sci. Tech., Professor, Winner of the Award of the Government of the Russian Federation, Honorary Worker of Sciences of the Russian Federation, Academician of RAACS (IVGPU)

E. M. Tchernyshov, Dr. Sci. Tech., Professor, Honorary Worker of Sciences of the Russian Federation, Academician of RAACS (VSUACE)

A. G. Chernykh, Dr. Sci. Tech., Professor (SPSSAAD)

M. I. Alekseev, Dr. Sci. Tech., Professor, Winner of the Award of the Government of the Russian Federation, Honorary Worker of Sciences of the Russian Federation, Academician of RAACS

A. N. Asaul, Dr. Sci. Ec., Professor, Honorary Builder of the Russian Federation, Honorary Worker of Sciences of the Russian Federation

G. I. Belyy, Dr. Sci. Tech., Professor, Honorary Worker of Sciences of the Russian Federation

B. G. Vager, Dr. Sci. Phys.-Math., Professor, Honorary Worker of the Higher School of the Russian Federation

V. V. Verstov, Dr. Sci. Tech., Professor, Honorable Builder of Russia

A. A. Veselov, Dr. Sci. Tech., Professor

T. A. Datsuk, Dr. Sci. Tech., Professor

S. A. Evtuykov, Dr. Sci. Tech., Professor, Honorary Worker of Higher School

S. P. Zavarikhin, Dr. Arch., Professor, Honorary Architect of the Russian Federation

B. N. Karpov, Dr. Sci. Tech., Professor

L. N. Kondrat'eva, Dr. Sci. Tech., Professor

P. A. Kravchenko, Dr. Sci. Tech., Professor, Honorary Worker of the Higher School of the Russian Federation

L. P. Lavrov, Dr. Arch., Professor, Honorary Architect of the Russian Federation, Correspondent Member of RAACS

R. A. Mangushev, Dr. Sci. Tech., Professor, Honorary Worker of the Higher School of the Russian Federation, Correspondent Member of RAACS

A. M. Maslennikov, Dr. Sci. Tech., Professor, Honorary Worker of Sciences of the Russian Federation

S. N. Nikiforov, Dr. Sci. Tech., Professor

Yu. V. Puharenko, Dr. Sci. Tech., Professor, Winner of the Award of the Government of the Russian Federation, Correspondent Member of RAACS

S. V. Repin, Dr. Sci. Tech., Professor

S. V. Sementsov, Dr. Arch., Professor

V. D. Kharlab, Dr. Sci. Tech., Professor

(SPSUACE)

Editor *T. V. Ananchenko*, *V. I. Gritsuk*

Translator *T. V. Lappo*

Proof-reader *M. P. Popova*

Computer imposition *V. I. Zholobov*

The address of the Founder and the Editorial Office:

2nd Krasnoarmeiskaia St. 4

190005, St.-Petersburg, Russia

Ph./ Fax: (812) 575-16-74, (812) 316-53-11

E-mail: vestnikspb@mail.ru

The contents and abstracts of articles are presented

on the site: <http://vestnik.spbgasu.ru>

The journal is registered by the Federal Service for Supervision of Communications, Information Technology and Mass Media (Roskomnadzor). The registration

certificate of the mass media organization is

ПИ № ФС77-61236, of 03.04.2015.

The journal is included by the Higher Attestation

Commission (HAC) of the Russian Federation into the

List of leading reviewed scientific journals and editions in

which the major scientific results of theses on competition

for the academic degree of the Doctor of Science are to be

published.

In case of reprinting, the link to the "Bulletin of Civil

Engineers" is obligatory.

On the cover one can see the monument to Nicholas I,

the Emperor, in honour of whom the Institute of Civil

Engineers (nowadays SPSUACE)

was named on December 17, 1892.

N. V. Kochenkov, *V. N. Kochenkov*. Determination of adjusting productivity of the local recirculation cooling system at joint work with the central air conditioning system 179

A. Yu. Martianova, *I. I. Sukhanova*. Determination the soaring speed of monodisperse building materials according to experimental study results 186

V. A. Pukhkal. Regulation of the convector heat flow by using air-valves 191

D. V. Timofeev, *E. G. Malyavina*. Development of numerical model of heat transfer between soil and ground heat exchanger 196

AUTOMOBILE TRANSPORT, TRANSPORT-TECHNOLOGICAL

CONSTRUCTION AND COMPLEXES

A. A. Berezina. Features of strengthening metal in dangerous zones of stress concentration in metalwork welded connections 203

O. K. Bobobekov. Influence of natural and climatic features of mountain regions of Tajikistan on the work of drivers 206

D. V. Dolgov, *V. N. Boykov*, *A. A. Neretin*, *V. N. Gulin*. The influence of 3D-technologies on geodetic location survey in road construction 211

E. V. Kurakina, *S. S. Evtuykov*. Study on adhesion characteristics of the road surface in auto technical examination of the road traffic accident 216

S. I. Pushchina. Provision of low-risk environment for new drivers stopping and parking the vehicle (from foreign experience) 224

S. V. Repin, *A. V. Zazykin*, *N. N. Krotova*. Development of models of calculating economically reasonable service life of transport technological machines 231

S. A. Seliverstov, *Ya. A. Seliverstov*. Review of megalopolis transport provision indicators 237

E. V. Tul'kin. Automation of the process of statistical data study of road accident factors 248

A. V. Chudakov. Determination of the vehicle speed during a vehicle-pedestrian crash depending on the vehicle body geometry (on the example of the sedan) 254

INFORMATICS, COMPUTER FACILITIES AND MANAGEMENT

E. I. Nemchenko. Simulation of numerical solution of the Cauchy problem for quasilinear parabolic equations based on a probabilistic algorithm 260

FROM RESEARCH TO INNOVATION

A. I. Gurinov. Building life cycle management on the basis of information modeling and staff training task 264

ECONOMICS AND MANAGEMENT

A. N. Asaul, *D. A. Zavarin*, *S. N. Ivanov*. Organizational mechanisms of stimulating innovative activity of regional investment construction clusters 273

M. G. Balikhin. The cycle and stages of commercializing intellectual activity results at the higher educational institution 283

M. V. Veronskaya. Management decision making and implementation of forecasts taking into account factors of uncertainty and risk 288

O. I. Narskaya. Application of the function cost analysis method for cutting the costs of management and the main types of resources in the process of the object construction 293

M. V. Petukhov. Business reputation as a factor in improving the competitiveness of construction companies 298

E. B. Smirnov, *M. G. Balikhin*. The concept and composition of the organizational-economic mechanism of commercializing the intellectual activity results at a higher educational institution 306

T. Yu. Shvedkova. The main features of public-private partnership (forms and models) 319

THE HUMANITARIAN SCIENCES

S. A. Evtuykov, *V. M. Petrov*, *N. V. Norina*. To the issue of teaching the course of "Mechanics" as a set of disciplines in the sphere of higher education 325

I. Yu. Lapina, *S. Yu. Kargapoltsev*. Military history and patriotism in the system of social-economic and political connections of Russia: the past and the present 330

N. L. Lukina. Psychological studies of choosing a working profession 343

Abstracts 351

Submitting materials requirements 372

Subscription rules 373