

Contents

BUILDING AND ARCHITECTURE

ARCHITECTURE, URBAN PLANNING, DESIGN

- L. P. Lavrov, E. G. Molotkova.* Planning module for sites in the historical center of St. Petersburg as repercussion of the investment potential of developers 5
- V. Eh. Liavdanskyy.* International architectural practice. Postgraduate practical training of architects 18
- N. S. Novokhodskaya, F. V. Perov.* J-B. A. Leblond: General-Architect of the Capital City St. Petersburg in 1716–1719..... 26

BUILDING DESIGNS

- N. S. Novozhilova.* Study of the stress state of brick walls strengthened with double-sided concrete heightening under local compression 34
- V. M. Popov, Yu. V. Pukharenko, M. G. Plyusnin, V. V. Belov.* Evaluation of the influence of the maximum deformation value of concrete under compression on the security of the results of calculating the strength of eccentrically compressed reinforced concrete element with a normal cross-section using a nonlinear deformation model..... 42
- S. O. Chepilko.* Refined calculation of complex steel-reinforced concrete beams by limit states 51

STRUCTURAL MECHANICS AND CALCULATION OF STRUCTURES

- V. N. Glukhikh, A. M. Maslennikov, L. N. Kondratieva, V. A. Meleshko, M. V. Sukhoterina.* Plastic stiffness matrix of a plane rod macroelement for discrete-analytical strength computation 66
- V. A. Kravchuk.* Dynamic parameters of the carrying capacity of steel beams prestressed by stretching the thin wall at rigid fixing on supports..... 72

TECHNOLOGY AND ORGANIZATION OF CONSTRUCTION

- S. V. Bovtsev, Nadim Q. R. Huraini.* Classifications and parameters of risks of construction projects 79
- R. V. Motylev, A. S. Karpushkin.* Analysis of the construction control documentation system in comparison with foreign approaches 87

BUILDING MATERIALS AND PRODUCTS

- T. A. Ivanova, L. G. Kolesnikova, T. M. Petrova.* Electrically conductive concrete for sidewalks and pedestrian paths..... 96
- M. A. Shvedova, O. V. Artamonova, A. Yu. Rakityanskaya.* Nano- and micro-modification of cement stone with complex additives based on SiO₂ 105

SANITARY ENGINEERING AND ECOLOGY

- T. A. Datciuk, A. M. Grititlin, S. M. Anisimov, A. V. Tsygankov.* Transmission and infiltration heat losses of residential buildings 115
- V. R. Taurit, A. N. Kolosnitsyn.* About the solution of the problem of organizing the air exchange in the premises of public buildings in order to protect human health from harmful gaseous substances..... 121

Scientific-technical peer reviewed journal

The Founder — the Federal State Budgetary Educational Institution of Higher Education “Saint Petersburg State University of Architecture and Civil Engineering” (SPbGASU)

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 (SPbGASU)

E. V. Korolev, Dr. Sci. Tech., Professor, Full member of the Russian Engineering Academy, Winner of the Government of the Russian Federation, Honorary Builder of Russia (SPbGASU)

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

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. of Engineering, Professor, Rector of SUT (Shushi University of Technology, 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)

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

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)

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

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 Higher School of the Russian Federation
 E. R. Vozniak, Dr. Arch., Professor
 T. A. Datsiuk, Dr. Sci. Tech., Professor
 B. N. Karpov, Dr. Sci. Tech., Professor
 L. N. Kondrat'eva, Dr. Sci. Tech., Professor
 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
 Yu. V. Puharenko, Dr. Sci. Tech., Professor, Winner of the Award of the Government of the Russian Federation, Correspondent Member of RAACS
 S. V. Sementsov, Dr. Arch., Professor
 V. M. Ulyasheva, Dr. Sci. Tech., Professor
 S. A. Evtuyukov, Dr. Sci. Tech., Professor, Honorary Worker of Higher School of the Russian Federation
 P. A. Kravchenko, Dr. Sci. Tech., Professor, Honorary Worker of the Higher School of the Russian Federation
 V. N. Dobromirov, Dr. Sci. Tech., Professor
 Ju. G. Kotikov, Dr. Sci. Tech., Professor
 A. E. Pushkarev, Dr. Sci. Tech., Professor
 A. A. Kapustin, Dr. Sci. Tech., Professor
 R. N. Safiullin, Dr. Sci. Tech., Associate Professor (SPbGASU)
 V. S. Lukinskiy, Dr. Sci. Tech., Professor (HSE in St. Petersburg)
 V. N. Lozhkin, Dr. Sci. Tech., Professor, Honorary Worker of Sciences of the Russian Federation (Saint-Petersburg University of State Fire Service of EMERCOM of Russia)
 A. N. Asaul, Dr. Sci. Ec., Professor, Honorary Builder of the Russian Federation, Honorary Worker of Sciences of the Russian Federation
 G. A. Tokunova, Dr. Sci. Ec., Professor
 A. A. Petrov, Dr. Sci. Ec., Professor
 N. G. Pletneva, Dr. Sci. Ec., Professor
 A. I. Solodkiy, Dr. Sci. Ec., Professor
 V. V. Asaul, Dr. Sci. Ec., Professor
 E. G. Guzhva, Dr. Sci. Ec., Professor (SPbGASU)
 G. F. Shcherbina, Dr. Sci. Ec., Associate Professor (AO SSMO "LenSpetsSMU")
 L. M. Kaplan, Dr. Sci. Ec., Professor (St. Petersburg Union of Construction Companies)
 R. A. Faltinskiy, Dr. Sci. Ec., Professor (JSC «Lenenergo»)

The address of the Founder and the Editorial Office:
 2nd Krasnoarmeyskaya St. 4, 190005, St. Petersburg, Russia
 Ph./ Fax: (812) 316-49-06
 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 № ФС77-69753, of 05.05.2017.

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 "Vestnik grazhdanskikh inzhenerov – 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 SPbGASU) was named on December 17, 1892.

S. V. Fedorov, A. M. Telyatnikova, M. I. Alekseev,
 M. A. Gilmuddinova. Reducing the influence zone of the dispersion discharge..... 128

DESIGN AND CONSTRUCTION OF ROADS, SUBWAYS, AIRFIELDS, BRIDGES AND TUNNELS

E. G. Kozin. Analytical methods of information modeling of decision-making processes in the operational control system of the St. Petersburg Metro..... 135
 A. S. Prolygin, G. V. Dolgih, A. S. Aleksandrov. Analysis of the results of triaxial tests of cohesive soils in the Omsk region..... 140

TRANSPORT

A. A. Belekhov, S. A. Evtuyukov. Assessment of the impact of changes introduced into the design of vehicles in operation on road safety..... 151
 Ya. V. Vasiliev, V. V. Voronin. Methodology for calculating the performance of forces working on the vehicle rollover at carrying out the road traffic accident examination..... 158
 A. D. Gorbunova. Optimization of the location of charging stations for electric vehicles on the example of Tyumen 165
 V. D. Egorov. Method of calculating the production program of freight road transportation for digital service management models..... 174
 Ju. G. Kotikov. Research of quantomobile acceleration dynamics by means of Matlab-Simulink programming environment..... 180
 A. G. Shevtsova. Calculation method for taking into account weather and climate factors in determining the indicators of road surface for precision control of traffic flows 190

ECONOMICS

A. N. Asaul, G. F. Shcherbina, M. A. Asaul. Marketing automation in the implementation of entrepreneurial activities in the field of real estate turnover using information and communication technologies 196
 S. A. Ershova, T. N. Orlovskaya. Research of the construction volume of housing and socially significant objects as a basis for creating a comfortable urban environment in the subjects of the Russian Federation 205
 Yu. P. Panibratov, V. A. Koshcheev, R. R. Kozakov. Development of corporate culture of construction organizations as a factor of increasing competitiveness 214

CHRONICLE

A. N. Asaul. Review of the textbook "Economics, Management and Politics: Synthesis and Analysis" (authors: Levin Yu. A., Litvinova T. N.)..... 222

Abstracts.....224
Submitting materials requirements.....236
Subscription rules237