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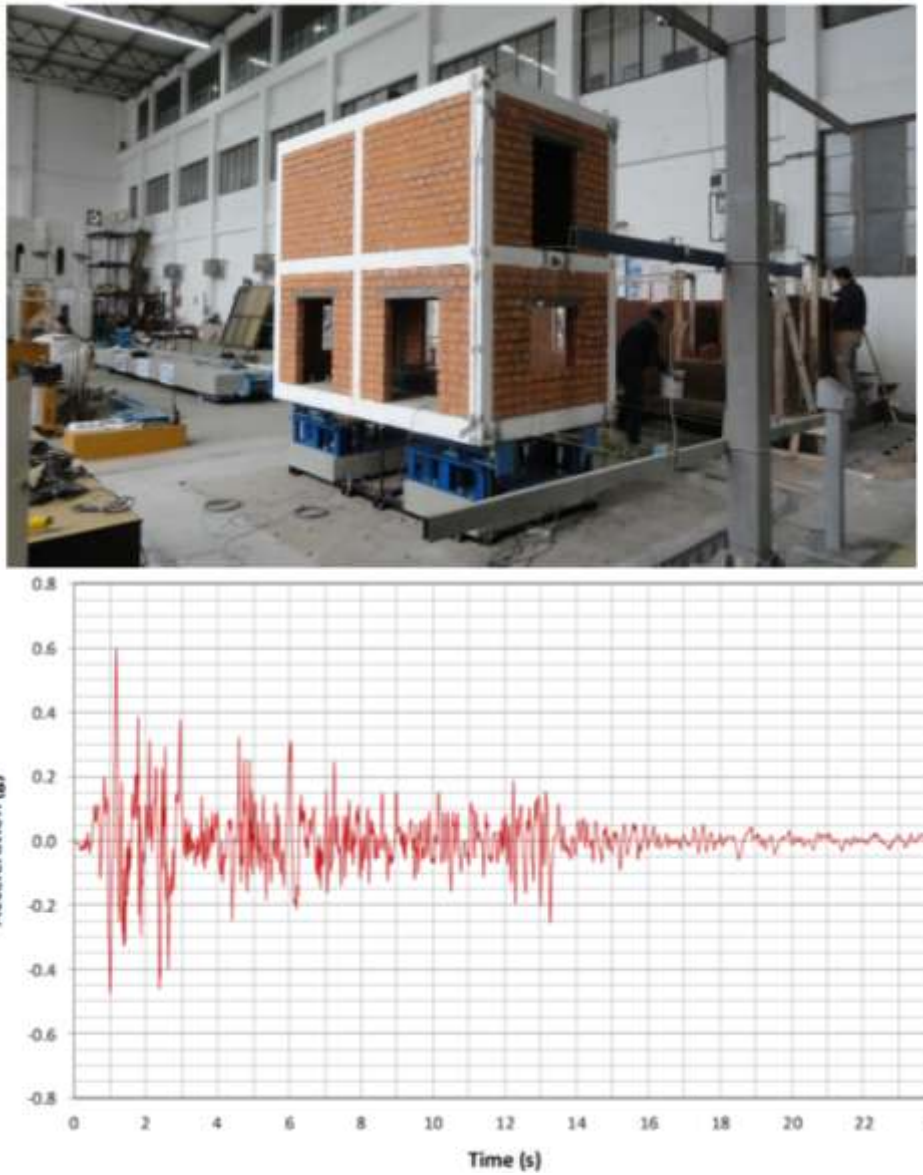

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Univerzitetska br.2
75000 Tuzla, Bosna i Hercegovina
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Izdavač:
Rudarsko-geološko-građevinski fakultet Univerziteta u Tuzli, Bosna i Hercegovina

Glavni i odgovorni urednik:
Damir Zenunović
Univerzitetska 2, 75000 Tuzla, Bosna i Hercegovina
Tel: +387 35 320 589
e-mail: damir.zenunovic@gmail.com, damir.zenunovic@untz.ba

Tehnički urednici:
Adnan Ibrahimović
Tihomir Knežiček (online izdanje)

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Riječ glavnog i odgovornog urednika

Veliko mi je zadovoljstvo i čast što sam imenovan za glavnog i odgovornog urednika časopisa **Glasnik Rudarsko-geološko-građevinskog fakulteta,** koji predstavlja nastavak 50-godišnje tradicije izdavačke djelatnosti Rudarsko-geološko-građevinskog fakulteta.
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Časopis će izlaziti jednom godišnje, u zadnjem kvartalu godine. Rukopisi dostavljeni do 01. juna biti će uzeti u obzir za izdanje u tekućoj godini. Unaprijed se zahvaljujem svim autorima koji će prepoznati naš časopis kao podoban medij za širenje i prezentaciju rezultata istraživanja, iskustava i ekspertiza koje se odnose na naučna polja 1.5, 2.1 i 2.7 (Frascati).
Koristim ovu priliku da pozovem sve osobe i preduzeća vezana uz djelokrug časopisa da podrže razvoj časopisa u narednom periodu.
Kao glavni i odgovorni urednik radit ću na promociji časopisa i podizanju zainteresiranosti autora, čitalaca i sponzora za časopis, a sve u cilju razvoja prepoznatljivog i kvalitetnog naučnog i stručnog izdanja. Članovima uređivačkog odbora želim uspješan rad na promociji i podizanju kvaliteta časopisa.

Glavni i odgovorni urednik
Prof.dr. Damir Zenunović

A Word from the Editor-in-chief

It is my great pleasure and honour to have been appointed as the Editor-in-Chief of the **Journal of Faculty of Mining, Geology and Civil Engineering,** which is a continuation of 50-year tradition of publishing activities of Faculty of Mining, Geology and Civil Engineering**.**
To be the editor-in-chief of a scientific & professional journal is a very demanding and serious responsibility. This responsibility is not limited to performing journal-editing tasks, defining rules the authors should respect when sending their papers to the journal, and taking care about timely and thorough review of papers. It also includes a huge responsibility towards the readers of the journal. The editor must respond to their needs and interests, but should at the same time be ready to take criticism. Of course, editors are also required to improve quality and make future plans for the journal, and especially to make sure it is recognized as an outstanding publication on an international plan. All these requirements and responsibilities oblige editors to be ready for constant quality improvements. In order to ensure better recognition of the journal on an international plan and quality improvement, an international advisory board is formed.
The Journal will be published once a year in the last quarter of the year. Manuscripts submitted by June 01 will be considered for release in the current year. I wish to extend my thanks in advance to all authors who are going to recognise our journal as a proper medium for spreading and presenting their research results, experience, and expertise relating to scientific fields 1.5, 2.1 and 2.7 (Frascati).
On this occasion, I would also like to invite all persons and companies connected with scope of the journal to support development of the journal in the oncoming period.
As editor in chief I will work to promote the journal and raising the interest of authors, readers and sponsors for the journal, in order to develop an outstanding and high-quality scientific and professional publication. I wish to members of the Editorial Board a successful work in promoting and raising the quality of the journal.

Editor-in-chief
Prof.dr. Damir Zenunovic

Glasnik Rudarsko-geološko-građevinskog fakulteta
Journal of Faculty of Mining, Geology and Civil Engineering
Vol. 2016/4, pp. 05-12

Miloud Beddar[1]
Abdelaziz Meddah[2]
Mohamed Boubakria[3]

Original Scientific Paper

FEASIBILITY OF USING RUBBER TIRES PARTICLES AS A PARTIAL REPLACEMENT FOR COARSE AGGREGATES IN RCC

Summary: *Although waste tire rubber particles have been used in conventional concrete for different applications, little information is available on the effect of such particles on the properties of roller compacted concrete.*
This experimental study has examined the feasibility of using rubber tire particles as a partial replacement of mineral aggregates. To assess this aim, concrete mix design is prepared using soil compaction concepts and various mixes were prepared using six designated rubber content varying from 5 to 30% by total aggregate volume. Moreover, a control mix with no replacement of the mineral aggregate was produced to make a comparative analysis.
The test results were compared with the respective conventional concrete and show that there is a reduction in compressive strength as well as flexural strength of the roller compacted concrete due to the inclusion of rubber aggregates. However, these defaults can be eliminated by increasing energy compaction and even though this may restricts its use in some structural applications, but it be used in pavements. The results show also that Roller rubberized concrete has desirable characteristics such as lower density and enhanced ductility. Benefits taken from such materials are more connected to the environmental aspects than the technical ones.
Key words: *Roller compacted concrete, tire rubber particles , workability, density, ductility, strength*

[1] *Prof., University of M'sila, Faculty of Technology, Laboratory of Materials and Mechanics of Structures, M'sila, ALGERIA, beddarm@yahoo.fr*
[2] *Dr., University of M'sila, Faculty of Technology, Laboratory of Materials and Mechanics of Structures, M'sila, ALGERIA, ameddah2004@yahoo.fr*
[3] *Engineer, Lafarge Company, M'sila, ALGERIA*

Glasnik Rudarsko-geološko-građevinskog fakulteta
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Jan Bujnak[1]
Zbigniew Perkowski[2]
Mariusz Czabak[3]
Karolina Gozarska[4]

Original Scientific Paper

COMPOSITE TRUSS BEAMS BEHAVIOUR

Summary: *The design specifications of composite trusses are only partially included in the European standards. However this construction system can be considered as one of the most economical for building and bridge structures. In general, the composite trusses can be used for greater spans up to the 30 m, which allows better use of internal space without restricting columns. To create the interaction between steel and concrete, it is necessary to prevent the relative slip at the steel and concrete interface using the shear connectors. But the local effects of a concentrated longitudinal force and the distribution of the shear force between steel section and concrete slab, as special task, should be appropriately examined. The finite element analyses can be used to investigate numerically this structural system. But also the static, dynamic and nondestructive experimental research has examined real structural behaviour. The outputs of this study are presented in the paper.*
Key words: *Composite truss, shear connection, numerical and experimental study*

[1] *Prof., University of Žilina, Faculty of Civil Engineering, Univerzitna 1, 010 26 Žilina, Slovakia, jan.bujnak@fstav.uniza.sk*
[2] *Prof., Opole University of Technology, Faculty of Civil Engineering, Katowicka 48, 45-061 Opole, Poland, z.perkowski@po.opole.pl*
[3] *Civ.Eng., Opole University of Technology, Faculty of Civil Engineering, Katowicka 48, 45-061 Opole, Poland, m.czabak@po.opole.pl*
[4] *Civ.Eng., Opole University of Technology, Faculty of Civil Engineering, Katowicka 48, 45-061 Opole, Poland, k.gozarska@po.opole.pl*

Glasnik Rudarsko-geološko-građevinskog fakulteta
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Cornelia-Florentina Dobrescu[1]
Elena-Andreea Calarasu[2]

Original Scientific Paper

RESEARCH REGARDING THE LIQUEFACTION OF SANDY SOILS

Summary: *The liquefaction process, caused by a large diversity of cyclical loads, leads to different responses of soil massifs. In order to characterize the dynamic behavior of soil during liquefaction is necessary to know the condition of deformability parameters (stiffness) and their resistance, and the manner of cyclic loads variation can influence parameters value. Dynamic soil characteristics are required to seismic design of civil and industrial buildings, especially on important buildings category. The analysis of factors which determine soil liquefaction susceptibility depends on local site conditions, foundation conditions on construction sites regardless of important buildings category and also on particular environmental conditions in the unstable areas affected by seismic risk. The paper presents the analysis of significant geotechnical parameters that influence sandy soil behavior during dynamic loads. For the evaluation of soil liquefaction resistance, the tests were performed on two soil types, in order to calculate the liquefaction potential due to dynamic loads, by using the triaxial apparatus. The results of laboratory test performed for the analyzed soils are expressed in terms of the factor of safety against its occurrence.*
Key words: *sands, dynamic loads, liquefaction*

[1] *Dr. eng., National Institute for Research and Development in Construction, Urban Planning and Sustainable Spatial Development, Bucharest, Romania, corneliadobrescu@yahoo.com*
[2] *Dr. geol., National Institute for Research and Development in Construction, Urban Planning and Sustainable Spatial Development, Bucharest, Romania,andreea.calarasu@gmail.com*

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Jelena Ristic[1]
Danilo Ristic[2]

Original Scientific Paper

ADVANCED GVMG SEISMIC ISOLATION SYSTEM FOR BUILDINGS

Summary: *The Generalized-Vertical Multi-Gap Seismic Isolation System (GVMG-SI System) for Buildings is based on the originally introduced new concept of global optimization of seismic energy balance (GOSEB Concept). This idea has been achieved by integration of: (1) Advantages of seismic isolation systems; (2) Advanced new concept for vertical multi-level multi-directional seismic energy absorption, and (3) Advantages of efficient system for response displacement control.*
In this paper presented is the basic concept of the developed advanced GVMG-seismic isolation system for seismic protection of existing and new multi-story buildings and selected original results from conducted experimental tests. The proposed system is applicable for economical earthquake protection of building structures of different usability categories and different types under destructive effects of the strongest future earthquakes. Particular emphasis is put on development of seismic isolation and vibration control devices providing high practical efficiency and effective application capability.
Keywords: *Buildings, nonlinear seismic response, passive control, seismic isolation devices, damping devices, displacement control devices, seismic protection*

NAPREDAN GVMG SISTEM ZA SEIZMIČKU IZOLACIJU OBJEKATA ZGRADA

Sažetak : *Generalan-vertikalan multi-gap sistem za seizmičku izolaciju zgrada (GVMG-SI Sistem) je baziran na kreiran nov i originalan concept za globalnu optimizaciju energetskog balansa ulazne seizmičke energije (GOSEB Koncept). Ova ideja je ostvarena preko integracije: (1) Postojećih prednosti koje obezbedjuju sistemi za seizmičku izolaciju; (2) Novih prednosti koje obezbedjuje originalan concept vertikalnog multi-nivo multi-pravac absorbera seizmičke energije i (3) Prednosti efikasnog sistema za kontrolu velikih pomeranja pri seizmičkom odgovoru.*
U ovom radu izložen je originalan koncept razvijenog unapredjenog GVMG-sistema za seizmičku izolaciju pogodnog za seizmičku zaštitu postojećih i novih višespratnih objekata zgrada i odabrani originalni rezultati od izvršenih eksperimentalnih testova. Predloženi sistem je primenljiv za ekonomičnu seizmičku zaštitu zgrada različitih namena i različitih tipova konstruktivnih sistema pri dejstvu i najjačih i najdestruktivnijih budućih zemljotresa. Posebna pažnja je poklonjena razvoju uredjaja sistema za seizmičku izolaciju i sistema za kontrolu vibracija obezbedjujući time visoku praktičnu efikasnost i sposobmost efektivne primene.
Ključne reči: *Zgrade, nelinearan seizmički odgovor, pasivna kontrola, uredjaji za seizmičku izolaciju, uredjaji za prigušivanje, uredjaji za kontrolu pomeranja, seizmička zaštita*

[1] *PhD, Assistant professor, Faculty of architecture, First Private University FON, Skopje, R. Macedonia, jelena.ristik@live.com*
[2] *PhD, full Professor, Institute of Earthquake Engineering and Engineering Seismology, University "Ss Cyril and Methodius", Skopje, R. Macedonia, danilo@pluto.iziis.ukim.edu.mk*

Glasnik Rudarsko-geološko-građevinskog fakulteta
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Verica Milanko[1]
Slobodan Šupić[2]
Sanja Milanko[3]
Suzana Draganić[4]
Mila Golić[5]

Preliminary Notes

APPLICATION OF SOFTWARE EVACUATION MODELING FOR BUILDINGS WITH A LARGE NUMBER OF OCCUPANTS

Abstract: *Estimation of the time required for evacuation is particularly important for buildings with the large number of occupants, such as large residential, commercial and public buildings. In our engineering practice, calculation model is usually applied for determination of the evacuation time. On the other hand, modeling and simulation are useful modern tools for the development of virtual scenarios and prediction and are very important in obtaining the dynamic information during the evacuation and identification of the critical points along evacuation road. A case study was carried out for the the building within the Faculty of Technical Sciences and the results of experimental simulation of evacuation represent a basis for the assessment of safety in case of fire in public buildings with the large number of occupants.*
Key words: *software evacuation modeling, determiniation of evacuation time, buildings fire safety assessment*

PRIMENA SOFTVERSKOG MODELA SIMULACIJE ZA ZGRADE SA VELIKIM BROJEM KORISNIKA

Sažetak: *Procena vremena potrebnog za evakuaciju je naročito važna za objekte gde boravi ili se okuplja veći broj ljudi, kao što su veliki stambeni, poslovni i javni objekti. U inženjerskoj praksi se primenjuje proračunski model određivanja vremena potrebnog za evakuaciju. S druge strane, modelovanje i simulacija su korisni savremeni alati za razvoj virtuelnih scenarija i predikciju, i imaju značajnu ulogu u dobijanju dinamičkih informacija o toku evakuacije, kritičnom putu i kritičnim tačkama puta evakuacije.*
Studija slučaja je urađena za zgradu Nastavnog bloka Fakulteta tehničkih nauka i rezultati eksperimentalne simulacije evakuacije mogu poslužiti kao polazna osnova za procenu bezbednosti korisnika u slučaju požara u javnim zgradama u kojima se okuplja veliki broj ljudi.
Ključne riječi: *software evacuation modeling, determiniation of evacuation time, buildings fire safety assessment*

[1] *Prof. dr, Higher Technical Scholl of Professional Studies in Novi Sad, Školska br.1, Novi Sad, Serbia, milanko@vtsns.edu.rs*
[2] *Ass. MSci, ssupic@uns.ac.rs*
[3] *Student, Disaster Risk Management and Fire Safety Engineering BSc,*
[4] *Ass. MSci, suzanav@uns.ac.rs*
[5] *Dipl.ing., Master Student, Disaster Risk Management and Fire Safety Engineering*
[2,3,4,5] *University of Novi Sad, Faculty of Technical Sciences, Department for Civil Engineering and Geodesy, Trg Dositeja Obradovića 6, Novi Sad, Serbia*