

Curriculum Vitae

Ime i prezime: **Vahida (rođ.Brkan) Žujo**

Datum i mjesto rođenja: 17.11.1960. Mostar

Obrazovanje:

- **Doktor tehničkih nauka**, Univerzitet “Džemal Bijedić” u Mostaru, Građevinski fakultet, 2008.
- Magistar tehničkih nauka, Univerzitet “Džemal Bijedić” u Mostaru, Građevinski fakultet, 2004.
- Stručni ispit iz oblasti nadzora i izvođenja radova, Republički komitet za građevinarstvo, Sarajevo, 1986.
- Diplomirani inženjer građevine, Univerzitet “Džemal Bijedić” u Mostaru, Građevinski fakultet, 1984.
- Gimanzija “Veljko Vlahović” u Mostaru, 1979.

Radno iskustvo:

- **Redovni profesor** na Građevinskom fakultetu Univerziteta “Džemal Bijedić” u Mostaru, naučna oblast “Organizacija i tehnologija građenja” (2019.);
- Vanredni profesor na Građevinskom fakultetu Univerziteta “Džemal Bijedić” u Mostaru, naučna oblast “Organizacija i tehnologija građenja” (2013.- 2019.);
- Docent na Građevinskom fakultetu Univerziteta “Džemal Bijedić” u Mostaru, naučna oblast “Organizacija i tehnologija građenja (2008.- 2013.);
- Asistent i viši asistent na Građevinskom fakultetu Univerziteta “Džemal Bijedić” u Mostaru, naučna oblast “Organizacija i tehnologija građenja (1995.- 2008.)
- Odgovorni projektant i nadzorni inženjer u Zavodu za ispitivanje materijala i konstrukcija pri Građevinskom fakultetu Univerziteta “Džemal Bijedić” u Mostaru (1995.-)
- Tehnički direktor (u svojstvu dopunske djelatnosti) u vlastitoj građevinskoj, poduzetničkoj firmi (1995.-2005.)
- Stalni sudski vještak za oblast građevinarstvo (1995.-)
- Ovlašteni procjenitelj kod više banaka (1995.-)
- Certificirani medijator, uža oblast građevinarstvo (2010.-...)
- Odgovorni rukovodilac gradilišta, GP “Vranica” (1984. – 1992.)

Trenutno zaposlenje:

- **Redovni profesor** na Građevinskom fakultetu Univerziteta “Džemal Bijedić” u Mostaru, naučna oblast “Organizacija i tehnologija građenja” stalni radni odnos
Privremeni i povremeni poslovi:
- odgovorni projektant i nadzorni inženjer u Zavodu za ispitivanje materijala i konstrukcija pri Građevinskom fakultetu Univerziteta “Džemal Bijedić” u Mostaru 1995.-
- Stalni sudski vještak za područje Federacije BiH,
- Ovlašteni procjenitelj za područje Federacije BiH
- Član komisije za tehničke prijeme građevinskih objekata u HNK-u.

Univerzitetski udžbenici:

- *Žujo, V.:* **GRAĐEVINSKA REGULATIVA U PRAKSI**, ISBN 978-9926-434-28-1, Univerzitet “Džemal Bijedić” u Mostaru, Građevinski fakultet, 2019.

- *Žujo, V.:* **MODELI ZA BRZU PROCJENU VREMENA GRAĐENJA**, ISBN 978-9926-8321-1-7, Univerzitet “Džemal Bijedić” u Mostaru, Građevinski fakultet, 2019.
- *Žujo, V.:* **UVOD U GRAĐEVINSKU REGULATIVU**, ISBN 978-9958-604-52-2, Univerzitet “Džemal Bijedić” u Mostaru, Građevinski fakultet, 2010.

Ostale publikacije iz područja visokog obrazovanja:

- *Žujo, V. et.al:* BHQFHE : self-certification to the QF-EHEA draft report, knjiga, ISBN 978-9958-042-15-7, Svjetski univerzitetski servis BiH, Sarajevo, 2017.
- *Žujo, V. et.al:* Writing learning outcomes in higher education, vodić, ISBN 978-9958-042-10-2, Svjetski univerzitetski servis BiH, Sarajevo, 2016.

Objavljeni naučni radovi¹:

Poslije izbora u zvanje van.profesor objavljeno je ukupno 12 radova

Prije izbora u zvanje van.profesor objavljena su ukupno 22 rada.

Izvod iz realizovanih stručnih projekata u zadnjih šest godina:

- Elaborat o kvalitetu izvednih radova na poslovno stambenom objektu, P = 2.800 m², sudski vještak, naručilac Općinski sud u Mostaru, 2019.
- Nalaz i mišljenje o primjenjenoj tehnologiji izvođenja radova na proizvodnoj hali, P = 800 m², sudski vještak, naručilac Općinski sud u Mostaru, 2019.
- Procjena vrijednosti regionalnih cesta i mostova HNK, sudski vještak, naručilac Ministarstvo prometa i veza HNK-a, Mostar, 2018.
- Vještačenje na okolnosti rušenja objekta, sudski vještak, naručilac Elektrodistribucija Mostar, 2018.
- Tehnički prijem mosta na rijeci Neretvi, Sjeverni logor, grad Mostar, predsjednik komisije, naručilac Grad Mostar, Odjel za urbanizam i građenje, 2017.
- Projekat etažiranja poslovno stambenog objekta, odgovorni projektant, P = 4.000 m², naručilac HP INVESTING Mostar, 2015.
- Projekat etažiranja poslovno stambenog objekta, odgovorni projektant, P = 2.900 m², naručilac Elko Marić Mostar, 2015.
- Procjena vrijednosti štete prozrokovane demonstrantima i potrebnih radova za sanaciju na objektima: Gradska Vijećnica i zgrada Grada Mostara, sudski vještak, naručilac Grad Mostar, 2014.
- Revizija predmjera radova za dionicu AC Drivuša – Klopče, revident, J.P. Auto ceste FBiH, 2013.
- Revizija glavnog projekta auto puta, dionica Tarčin-Zukići, revident, J.P. Auto ceste FBiH, 2013.
- Elaborati o procjeni vrijednosti više poslovnih kompleksa, ovlašteni procjenitelj, naručilac Banka
- Itd itd.

Mentor na izradi doktorske disertacije:

- **Dalila Jabučar:** “**RAZVOJ METODOLOGIJE PROCJENE RIZIKA OD POPLAVA**” Građevinski fakultet Univerziteta “Džemal Bijedić” u Mostaru, april 2017.

¹ Detalje pogledati na kraju biografije

Član komisije za ocjenu i odbranu doktorskih disertacija kandidata:

- Aleksandar Petrovski, pod naslovom “ОДРЖЛИВ ПРОЕКТЕН МЕНАЏМЕНТ НА ИДЕЈНИ АРХИТЕКТОНСКИ ПРОЕКТИ ЗА СТАЊБЕНИ ЗГРАДИ”, Građevinski fakultet Univerziteta “ Sv. Kiril i Metodij” u Skoplju, mart 2017.;
- Enes Šeperovića, pod naslovom: “MODEL ORGANIZACIJE UPRAVLJANJA PREKOGRANIČNIM RIJEČNIM SLIVOM”, Građevinski fakultet Univerziteta “Džemal Bijedić” u Mostaru, 2014;

Izvod iz mentorstva na izradi master rada na II ciklusu:

- **Ajla Memić: “ Zaštita na radu u građevinskoj operativi”** Građevinski fakultet Univerziteta “Džemal Bijedić” u Mostaru, juni 2019.
- **Goran Bevanda: “ Analiza implementacije projekta remont željezničke pruge Konjic – Čapljina po FIDIC crvena knjiga”** Građevinski fakultet Univerziteta “Džemal Bijedić” u Mostaru, april 2019.
- **Amra Huseinbegović: “Izgradnja rasponske konstrukcije vijadukta istog poprečnog presjeka sa dvije različite tehnologije”** Građevinski fakultet Univerziteta “Džemal Bijedić” u Mostaru, novembar 2018.
- **Jasmina Topić, pod naslovom: “Analiza građenja objekata sa aspekta održivosti”** Građevinski fakultet Univerziteta “Džemal Bijedić” u Mostaru, maj 2017.
- **Itđ. Itđ,**

Ostala mentorstva i članstvo u komisijama:

- Mentor na izradi **diplomskih radova** na VII stepenu za **25 kandidata**;
- Član komisije za odbranu diplomskih radova na VII stepenu za 13 kandidata;
- Mentor na izradi završnih radova za 10 kandidata itd.

Pozivna predavanja kao gost profesor:

- „Izgradnja kolektora i vjetroelektrana na području grada Mostara“, Građevinski fakultet Univerziteta u Beogradu, april 2018.
- „Upravljanje projektima kroz primjere iz prakse“, Građevinski fakultet Sveučilišta u Rijeci, decembar 2015.
- „Iskustva sa građenja u FBiH i modeli za brzu procjenu vremena građenja“, Građevinski fakultet Univerziteta u Ljubljani, juni 2012.
- „Iskustva sa građenja u FBiH i modeli za brzu procjenu vremena građenja“, Građevinski fakultet Univerziteta u Skoplju, decembar 2011.
- “Upravljanje projektima kroz planiranje vremena građenja”, Građevinski fakultet Univerziteta u Sarajevu, oktobar 2008.god.

Realizovani naučno - istraživački projekti od strane Federalnog Ministarstva obrazovanja i nauke:

- „Primjena zaštite na radu u građevinskoj operativi“, naučno-istraživački projekat sa Hrvatskom, Srbijom i Makedonijom, 2018., voditelj projekta
- „Analiza građenja objekata sa aspekta održivosti“, naučno-istraživački projekat sa Hrvatskom i Makedonijom, 2015., voditelj projekta

- „Investiranje u građevinske projekte na ekološkim principima“, naučno-istraživački projekat sa Slovenijom i Češkom, 2013., voditelj projekta
- „Efekti komunikacije između glavnih sudionika u procesu građenja“, naučnotehnološka saradnja međunarodnog karaktera, 2013.god., voditelj projekta
- „Model za vrednovanje stambenih jedinica sa aspekta tržišnih uslova“, naučnotehnološka saradnja međunarodnog karaktera, 2012.god., voditelj projekta
- “Razvoj višekriterijalnog modela za cjelovitu ocjenu vrijednosti stambenih jedinica”, naučna i tehnološka saradnja između BiH i R Slovenije 2012.-2013., voditelj projekta
- „Planiranje vremena građenja“, istraživanje od značaja za FBiH 2012.god., voditelj projekta
- „Upravljanje rokovima i investicijama u građevinarstvu“, naučnotehnološka saradnja međunarodnog karaktera, 2011.god., voditelj projekta

Učešće na projektima od značaja za visoko obrazovanje:

- “Bosnia and Herzegovina Qualification Framework for Higher Education” Tempus projekat, voditelj tima ispred Univerziteta “Džemal Bijedić” u Mostaru, 2014.-2016.
- "Strategic Development of Higher Education and Qualification Standards", zajednički projekat Evropske unije i Vijeća Evrope, član tima ispred Univerziteta, 2013.
- “Strateški pravci razvoja visokog obrazovanja u Federaciji Bosne i Hercegovine od 2012. do 2022.g.” Sinergija i partnerstvo, FMNO, predstavnik Univerziteta “Džemal Bijedić”, 2012.
- “Program mjera za prevenciju korupcije u visokom obrazovanju u Federaciji Bosne i Hercegovine“, Transparentnost, zakonitost i poštivanje procedura za bolje visoko obrazovanje, Mostar, član tima, FMNO, 2012.

Učešće na konferencijama od značaja za visoko obrazovanje:

- The IV. European Women Rectors Conference, Istanbul, May 15-17, 2014.
- The sixth World Women University Presidents Forum, September 6 - 8, 2014., Beijing, China, **prezentovan rad** “B&H women in post-war high education“

Mobilnost akademskog osoblja:

- Erasmus Mundus Action 2 Project Basileus V, jednomjesečni boravak na Univerzitetu u Ljubljani, oktobar 2014.
- Ceepus III, freemover, Univerzitet u Beogradu april 2018.

Recenzent više naučnih radova za časopise i konferencije:

- Tehnički vjesnik, Osijek, <http://www.tehnicki-vjesnik.com/web/public/page>
- Organization, Technology and Management in Construction: an International Journal, <http://www.grad.hr/otmcj/>
- OTMC Conference, <http://www.otmc-conference.com/>

Članstvo u rukovodnim tijelima:

- Prorektor za nastavno-naučna pitanja na Univerzitetu „Džemal Bijedić“ (2012.-2018.)
- Član Upravnog odbora BHPA-a (2018.- 2019.)
- Član Savjeta Univerziteta “Džemal Bijedić” (2008 – 2012.)
- Član Upravnog odbora Agencije za privatizaciju HNK-a (2005.-2009.),
- Prodekan za nastavu na Građevinskom fakultetu (1995.-1999.).

Završeni certificirani seminari i obuke:

- Profesionalna edukacija za procjenitelje nekretnina, 2018. Beograd
- Trening za akademsko i neakademsko osoblje za rad sa studentima sa posebnim potrebama, 2014. Sarajevo
- Usaglašeni opći uslovi ugovora o građenju FIDIC-Međunarodne razvojne banke i korištenje medijacije u građevinskim sporovima, UKI, 2011. Sarajevo
- I konferencija o upravljanju cestovnom infrastrukturom sa aspekta bezbjednosti, 2010. Sarajevo
- Advanced training mediation in construction disputes, 2010. Beograd
- Medijacija II, 2010.Sarajevo
- Uslovi ugovora prema FIDICU-u, UKI, 2009. Sarajevo
- Upravljanje projektima u građevinarstvu, UKI, 2008. Sarajevo
- Bolonjski proces, 2006. Neum
- Zahtjevi standarda ISO 9001:2000 I ISO 9000 u građevinarstvu, 2004. Sarajevo.

Ostalo:

- Poznavanje engleskog i francuskog jezika.
- Član naučnog odbora OTMC Conference, Zagreb
- Studijska posjeta Građevinskom fakultetu Univerziteta u Beogradu, odsjeku za Organizaciju i tehnologiju u organizaciji IFC-a kao predstavnik Univerziteta “Džemal Bijedić”, 2011. Beograd
- Predavač na Tehničkom fakultetu Univerziteta u Bihaću, 2009.-2011.
- Član stručnog tima za izradu studije “Prostorno saobraćajna studija cestovne mreže HNK”, 2006.

Dr. sc.Vahida Žujo

Mostar, 2023.

Prilog:

- Spisak objavljenih naučnih radova.

Naučni radovi objavljeni nakon izbora u zvanje van. profesor u časopisima:

1. Petruseva, S., Žileska-Pančovska V., **Žujo V.**, Brkan-Vejzović A.: “*Construction costs forecasting: comparison of the accuracy of linear regression and support vector machine models*“ Technical Gazette Vol.24, No., Pages 1431-1438, ISSN 1330-3651 (Print), ISSN 1848-6339 (Online) DOI: 10.17559/TV-20150116001543, October 2017, http://hrcak.srce.hr/index.php?show=clanak&id_clanak_jezik=277466
Abstract: Each contract for a construction project has the costs as an essential element, so the accuracy of forecasting the construction costs can have an impact on the project realization, and also, on the project participants' business. Data for structures (75) were used for modelling with two predictive models: linear regression model (LR) and support vector machine (SVM) model, using Bromilow's model for cost and time relation and predictive modelling software DTREG. The mean absolute percentage error (MAPE) for the SVM model is 0.3% and for the linear regression model is 4.79%. Comparison of the models' results pointed out that the forecasting with SVM was significantly more accurate.

2. **Žujo, V.**, Žileska-Pančovska V., Petrusseva S., Petrovski A.: “*Construction Managers’ Perception for Sustainable Construction Contributing Factors: Analysis using Support Vector Machine*“ TEM Journal. Volume 6, Issue 2, Pages 391-399, ISSN: 2217-8309 (Print), ISSN: 2217-8333 (Online)DOI: 10.18421/TEM62-26, May 2017,
http://www.temjournal.com/content/62/TemJournalMay2017_391_399.pdf
Abstract –This paper investigates the construction managers’ perception of sustainability contributing factors in construction. Respondents worked at 102 construction companies in the R. Macedonia and 102 in the Federation of Bosnia and Herzegovina (B&H). Using support vector machine, prediction models were designed. For classification of the target variable “familiarity with sustainable construction industry”, 25 predictors were chosen. Depending on the validation method used, the accuracy of the B&H model was from 93.14% to 100%, and of the Macedonian model – from 91.18% to 94.12%. General conclusion is that construction managers should increase their knowledge about sustainability contributing factors.

3. **Žujo, V.**, Car-Pušić D., Žileska-Pančovska V., Čećez M.: „*Time and Cost Interdependence in Water Supply System Construction Projects*”, Technological and Economic Development of Economy (izdavač: Taylor&Francis co-Published with Vilnius Gediminas Technical University), 2015, DOI: 10.3846/20294913.2015.1071292, ISSN: 2029-4913 (Print) 2029-4921 (Online)
<http://www.tandfonline.com/doi/abs/10.3846/20294913.2015.1071292>
Abstract: Time and price of contracted construction as well as their overrun are among highly pronounced issues in the construction practice. Numerous studies indicate that there is a dependency between these parameters at various construction markets. The paper shows the results of a research conducted on a group of 40 projects related to water supply systems carried out in the Federation of Bosnia and Herzegovina from 2001 to 2012. Collected data, obtained through interviewing chief engineers of construction companies, have been used as input parameters for implementation of single linear regression by applying the BTC (Bromilow time-cost) algorithm. The final result is a model in the form of an exponential equation. Whereas it was obtained based on effectuated values, it can be considered appropriate for assessing and testing the construction time in the early planning stage, as well as at work contracting. Since the parameter values in the model depend on circumstances of the specific area under consideration, the application of the model is recommended primarily in the area where the research was conducted. Results of the price overrun and construction overrun interdependence have not resulted in determining the exponential model. The paper also proposes application recommendations and guidelines for further research.

4. **Žujo, V.**, Car-Pušić D., Žileska-Pančovska V.: "*Cost and Experience based Real Estate Estimation model*", Procedia - Social and Behavioral Sciences, Volume 119, 19 March 2014, pp 672-681, ISSN: 1877-0428
http://ac.els-cdn.com/S1877042814021661/1-s2.0-S1877042814021661-main.pdf?_tid=e5cc5892-4aa7-11e7-ade9-00000aab0f6b&acdnt=1496747243_3b3e6c1f874fb041fdbd718d327c6f93
Abstract: In many ways, Bosnia and Herzegovina, Croatia and Macedonia are specific countries. After the war and the breakup of Yugoslavia their real estate market, especially the residential one, has been exposed to major changes. This paper presents both a comparative overview of the legislative regulations regarding the matter and an experience review with a special emphasis on data obtained in the real estate agencies and by independent surveyors – civil engineers. As a

result of a comprehensive analysis, a model that can be applied in all three countries has been established and presented in this paper. The model, supported by MS Excel, is based on the cost method and depends on the real estate market current trends. The model can be easily applied and modified.

5. Petrusseva, S., Zileska -Pancovska, V., **Zujo, V.**: „PREDICTING CONSTRUCTION PROJECT DURATION WITH SUPPORT VECTOR MACHINE“, International Journal of Research in Engineering and Technology, Vol-02 Issue-11, Nov-2013, pp 12-24, e - ISSN : 2319-1163, p-ISSN: 2321 – 7308,

<http://esatjournals.net/ijret/2013v02/i11/IJRET20130211003.pdf>

Abstract: This paper presents a forecasting model for construction time, using support vector machine (SVM) – recently one of the most accurate predictive models. Every construction contract contains project deadline as an essential element of the contract. The practice shows that a considerably present problem is that of non-compliance of the contracted and real construction time. It's often the case that construction time is determined arbitrarily. The produced dynamic plans are only of formal character and not a reflection of the real possibilities of the contractor.

First, a linear regression model has been applied to the data for 75 objects, using Bromilow's "time cost" model. After that a support vector machine model to the same data was applied and significant improvement of the accuracy of the prediction was obtained.

6. Petrusseva, S., **Zujo, V.**: Zileska -Pancovska, V.,“Neural Network Prediction Model for Construction Project Duration“, International Journal of Engineering Research & Technology, Vol-02 Issue-11, Nov-2013, pp 1646 – 1654, ISSN: 2278-0181

<http://www.ijert.org/view-pdf/6349/neural-network-prediction-model-for-construction-project-duration>

Abstract: This paper presents neural network model for predicting construction project duration. Key data of the total of 75 buildings constructed in the Federation of Bosnia and Herzegovina have been collected through field studies. The collected data contain information for the contracted and real time of construction, the contracted and real price of construction and there are also data for the use of these 75 objects and for the year of construction. First, a linear regression using "time-cost" model was applied to these data for forecasting the construction time. Then, a multilayer perceptron neural network (MLP - NN) predictive model to the same data was applied and significant improvement of the accuracy of the prediction was obtained.

Naučni radovi objavljeni nakon izbora u zvanje van. profesor na konferencijama:

1. Žileska-Pančovska, V, Blaževska-Stoilkovska B., **Žujo V.**, Petrovski A.: "Construction Managers*s Perception of Sustainability Implementation in Building Processes ", 12th International Conference, OTMC 2015-Organization, Technology and Management in Construction, Primošten, Hrvatska, 02-05 septembar 2015., Book of Abstracts: p 61, Conference Proceedings pp 426-434, ISBN: 978-953-7686-05-5 **rad prezentiran na skupu**

<http://www.buildup.eu/en/events/12th-international-otmc-conference-organisation-technology-and-management-construction>

Abstract: Construction fosters the economic development of the country, but as well it can have a negative impact regarding sustainable development. One of the reasons for poor implementation of sustainability is the opinion that it could increase the construction costs. Construction

managers can have a significant contribution in the implementation of sustainability in construction, especially in the building process.

Familiarity with sustainability in construction and perceived implementation of three main aspects of sustainability in the building process – economic, environmental and social, were investigated among 108 construction managers employed in construction companies in Republic of Macedonia. Participants were asked to fill out a questionnaire in order to assess the studied variables contributing to sustainable construction.

Data analyses using MANOVA revealed that the way respondents perceived implementation of sustainability practices in building process, highly depends on familiarity with sustainability concept, information on sustainability aspects in building process and type of organization where respondents were employed. Follow up ANOVA showed that: a) construction managers who were more familiar with sustainability concept rated economic and social aspect of sustainability at higher level, b) participants who were informed about sustainability characteristics of structures, highly evaluated environmental and social aspects of sustainability, c) construction managers employed in organizations with up to 20 employees reported higher degree of implementation of environmental dimension compared to their colleagues from companies with more than 20 employees.

In general, findings demonstrated that construction managers need more information on sustainability, that they perceive these issues subordinated to costs and that sustainability practices should be focused more on human resources.

2. Petrovski, A., Žileska-Pančovska V., **Žujo V.**: „Improving building sustainability by optimizing facade shape and solar insolation use”, International Scientific Conference People, Buildings and Environment 2014, 15-17 October, 2014, Kroměříž, Czech Republic, Conference Proceedings Vol.3, pp 374-384, ISSN: 1805-6784

http://www.fce.vutbr.cz/ekr/pbe/Proceedings/2014/Proceedings_2014.htm

Abstract: In R. of Macedonia, ongoing public procurement projects for facade renovation of existing buildings intend to improve their energy performance and sustainability. The current efforts for this realization focus primarily on applying thermal insulation while not considering the benefits of utilizing passive solar design. The facades of the aforementioned buildings are not designed according to these principles. We argue that redesigning and optimizing the facade shape and glazing percentage can substantially contribute to the energy performance of an existing building. This paper presents the results of the study carried out on one of the ongoing procurement projects. A relevant facade of an existing building is analyzed in order to maximize its insolation by optimizing the shape and glazing. The optimization methodology applies evolutionary solving tool named Galapagos which retrieves solar insolation data from Ecotect via the Geco plug-in. A grid is plotted on the facade where each knot can shift its relative position in an iterative process until the most optimal facade shape is achieved. The optimized and existing insulated facades are compared in terms of energy performance, cost and return of investment. It is concluded that the total sum of construction and operational costs of the facade with optimal shape are higher compared to the insulated facade with existing shape; moreover, beside the larger energy savings the return of investment period is prolonged due to higher construction cost.

3. Žujo, V., Žileska-Pančovska V., Čeček M.: „*Prediction model for sustainable construction project duration*“, 15. International symposium of MASE, Struga 18-21 septembar 2013, Knjiga abstrakta: pp 125 – 126, ISBN 9989-9785-1-9
Abstract: The connection between contracted construction time and contracted construction costs has been analyzed. Key data on the total of 75 buildings constructed in the Federation of Bosnia and Herzegovina have been collected through field studies. Chief engineers of construction companies have been interviewed on contractual and actually incurred costs and terms. By applying the linear regression model, with interviews parameters as inputs, the SPSS computer program generated a so called „time-cost“ model. The research has confirmed the accuracy of Bromwil's „time-cost“ model in the Federation of Bosnia and Herzegovina and offers a new approach to solving issues of establishing sustainable construction time.

4. Žujo, V., Car-Pušić D., Žileska-Pančovska V.: "*Cost and Experience based Real Estate Estimation model*", 27th IPMA World Congress, Dubrovnik, Hrvatska, Sep 30. – Okt 2. 2013. <https://ipma27thworldcongress2013.sched.com/>

5. Žujo, V., Čeček M., Šelih J., Kušar M.: „*Multi criteria assessment of residential units*“, 11th International Conference, OTMC 2013-Organization, Technology and Management in Construction, Dubrovnik, Hrvatska, 28-30 septembar 2013., Knjiga abstrakta: p 50
Abstract: The last two decades have been a turbulent time for the SE Europe. Socioeconomic conditions strongly affected the real estate conditions in an adverse manner. In addition, the economic trends over the last 5 years resulted in explicit demand of the potential buyers to have an objective assessment tool at their disposal. Several criteria have to be taken into the account if such tool is to be perceived by the stakeholders on the real estate market as useful. The paper presents foundations for the development of the multi-criteria model. Relevant criteria and sub-criteria are identified and justified: location, technical quality, architecture and living comfort, and their relative importance is judged from Bosnian point of view. Further, as green building and building certification play an important role in raising awareness and promoting the construction quality, they are used as one of the starting points of the model. The research results conducted in the city of Mostar (Bosnia and Herzegovina) are presented. Data were collected from five agents employed in the real estate agencies. Each agent has given details for 8 potential buyers, which includes a total of 40 residential units. Data were collected by surveying and interviewing, and by using of existing databases.

Prihvaćen naučni rad za OTMC 2019. i biće prezentovan od 4.9. -7.9.2019. u Zagrebu:

Žujo, V., Špago S., Žileska-Pančovska V.: „*Microtunnelling of Wastewater Collector System – Experiences from the City of Mostar*” OTMC 2019-Organization, Technology and Management in Construction, Zagreb 4-7 septembar 2019, <http://www.otmc-conference.com/>
Abstract: Water pollution is one of the most serious environmental pollutions and since 2014 the City of Mostar have been implementing a project on construction of a wastewater collector system with an estimated cost of approx. EUR 128,000,000. The microtunneling technology has been applied in Bosnia and Herzegovina for the first time. This paper highlights some occurred problems and experiences obtained during the construction. A bad design of the project documentation due to incomplete geotechnical testing and insufficient number of trial holes, a

lack of a precise underground cadaster, pedestrians' safety, traffic regime and on-site delivery of large-profile pipes have been identified as major causes of the problems. It is concluded that microtunnelling technology is a useful technology for tunnel construction in urban areas, however this technology requires a design documentation that is prepared in a clear, concise and detailed manner. Also, an experienced and fully committed team needs to be appointed to manage the construction.

Naučni radovi objavljeni do izbora u zvanje van.profesor:

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5. **Žujo, V.**, Žileska-Pančovska, Čećež, M., V., Denkovska, Lj., „ *Analysis of causes for delaying contracted construction terms for objects of infrastructure*”, 14. International symposium, Struga 28.9-1.10.2011., Zbornik radova, str.481-487
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