



UNIVERSITY OF STRUCTURAL ENGINEERING AND ARCHITECTURE (VSU) „L. KARAVELOV

REVIEW

From: Assoc. Prof. Dr. Eng. Lubomir Zdravkov
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Civil Engineering, Scientific specialty "Building Structures"

About: Competition for the academic position of "Associate Professor" in the professional field 5.7. "Architecture, construction and geodesy", scientific specialty "Building Structures" ("Reinforced Concrete Structures"), for the needs of the Department "Building Structures", announced in State newspaper no. 15 of 19.02.2021 and on the website of VSU.

Ground for submitting the review: participation in the composition of the scientific jury of the competition for the academic position of "Associate Professor", according to Order 120 of 12.03.2021 of the Rector of VSU "Lyuben Karavelov"

Candidate: ch. Assistant Professor Dr. Eng. Stanislav Tsvetkov

1. Information about the candidate

Stanislav Tsvetkov was born in September, 1984. In 2003 he graduated from the Technical Vocational High School "Nikola Vaptsarov" in Radomir. From 2003 to 2009 he studied at the University of Structural Engineering and Architecture (VSU) „L. Karavelov, where he obtained an educational qualification degree "Bachelor" in the specialty "Construction of buildings and facilities." After that he continued his education at the same higher school in 2011 and acquired a Master's degree in Construction of Buildings and Facilities, with a specialization "Building Construction". On 18.05.2018 he defend of a dissertation at VSU on "Antiseismic provision of special reinforced concrete structures" ("Seismic analysis of reinforced concrete aboveground water tanks") with supervisor Assoc. Prof. Dr. Eng. Georgi Georgiev.

The work experience of the candidate is only from VSU, Faculty of Civil Engineering, Department building structures, as follows:

- a) 2010 ÷ 2014 - full-time assistant;
- b) 2014 ÷ 2019 - part-time assistant;
- c) 2019 ÷ until now - chief assistant.

From the presented reference it is obvious that the work experience of the candidate as a teacher at VSU is greater than the requirement for a minimum of four years.

2. The provided by Ch. Assistant Dr. Eng. Stanislav Tsvetkov materials with which he applied for the competition for "Associate Professor"

In addition to Decree № 122 of June 29, 2018 amending and supplementing the Regulations for application of the Law for the development of the academic staff Republic of Bulgaria, promulgated in the State newspaper, no. 56 of July 6, 2018, amendment and addition in State newspaper No. 15 of February 19, 2019, each candidate for the academic position of "Associate Professor" must collect a certain minimum number of points. They are grouped into several categories as follows:

Indicator group A

For this group, in accordance with Regulations for application of the Law for development of the academic staff in the Republic of Bulgaria, the candidate for "associate professor" must collect 50 points. The candidate was submitted an abstract for a dissertation defended by him in 2018 for the acquisition of a Doctor's degree, with which he acquired 50 points. With this, the requirements for group A indicators are met.

Indicator group B

According to from Regulations for application of the Law for development of the academic staff in the Republic of Bulgaria, the candidate for "associate professor" should not collect points from this group of indicators.

Indicator group C

In addition to Regulations for application of the Law for development of the academic staff in the Republic of Bulgaria, in this group of the candidates for "associate professor" must collect at least 100 points. Ch. Assistant Stanislav Tsvetkov has provided a habilitation thesis - a monograph that carries 100 points. In this way, the requirements for the group of indicators are met.

The monograph is entitled "Reinforced concrete structural shear walls - anti-seismic "discs" and was published by VSU in 2020 in a circulation of 90 copies.

Indicator group D

In addition to Regulations for application of the Law for development of the academic staff in the Republic of Bulgaria, in this group of candidates for "associate professor" must collect at least 200 points. For this group of indicators Dr. Stanislav Tsvetkov has presented the following scientific publications:

a). a monograph which is not presented as a major habilitation work.

The monograph is entitled "Constructors for civil engineers - the prefabricated one-storey buildings of reinforced concrete elements" and was published by the VSU in 2019 in a circulation of 300 copies. That brings him 30 points.

b). scientific publications in editions that are referenced and indexed in world-famous databases of scientific information

The candidate has presented one of his articles in print, which will be published in the journal "IOP Conference Series: Materials Science and Engineering". The magazine has been part of Scopus from 2009 until today. This publication brings the author 40 points.

c). scientific publications in non-reviewed journals with scientific reviewing or in edited collective volumes

Dr. Stanislav Tsvetkov has presented 24 scientific articles, seven of which were written independently, and the rest - in co-authorship. Five of the the submitted articles have no scientific value and / or are outside the scope of this competition. The rest of articles bring on the candidate 246.67 points.

The total amount is $30 + 40 + 246.67 = 316.67$ points, which is much more than the required 200 points.

Indicator group E

For this group, in accordance with Regulations for application of the Law for the development of the academic staff Republic of Bulgaria, the candidate for "associate professor" must collect 50 points. Here Dr. Stanislav Tsvetkov has presented the following citations of his scientific publications:

- a) citations or reviews in scientific editions, referenced and indexed in world-renowned databases of scientific information or in monographs and collective volumes

One of Dr. Tsvetkov's publications is cited in an article published in the „IOP Conference Series: Materials Science and Engineering“ in 2020. As clarified above, the journal is part of Scopus from 2009 to the present. In addition, another 7 (seven) publications by Dr. Tsvetkov are cited in reports from the International Conference Computational Civil Engineering. Empower the digital Transition in the Construction World, which will take place from 27 to 29 May in Iasi, Romania. Following the conference, the conference proceedings will be published in the „IOP Conference Series: Materials Science and Engineering“.

Three of the citations are on above of "Methodical guide for developing a course project on Reinforced Concrete Structures according to Eurocode", co-authored with G. Georgiev. According to me, the manuals generally have a very low scientific value, especially those that have written for the needs of course design. For this reason, three of the above citations I do not admit.

I admit five citations of the candidate, giving it 50 points.

- b) citations in monographs and collective volumes with scientific reviewing

Five of Dr. Tsvetkov's scientific publications are cited in monographs. One of the citations is of "Methodological guide for developing a course project for reinforced concrete structures according to Eurocode".

I admit four citations, which bring the candidate 12 points.

- c) citations or reviews in non-reviewed journals with scientific reviewing

Here Dr. Tsvetkov presented 40 cited publications. Sixteen of them are of "Methodological guide for developing a course project on Reinforced Concrete Structures according to Eurocode".

I admit twenty-four citations, which bring the candidate 48 points.

The total amount is $50 + 12 + 48 = 110$ points, which is more than twice as much as the expected 50 points.

It can be seen that Ch. Assistant Dr. Eng. Stanislav Tsvetkov fulfills all the requirements of the Regulations for the application of a law on the development of academic staff in the Republic of Bulgaria. Some of them - with many.

3. Provided by Ch. Assistant Dr. Eng. Stanislav Tsvetkov scientific and scientific - applied materials

To participate in the current competition for the academic position of "Associate Professor", the candidate, Dr. Tsvetkov, presented:

- a) two self-written monographs;

b) a self-written article will be published in the journal IOP Conference Series: Materials Science and Engineering. The magazine has been part of Scopus from 2009 until today. The article is written in English and is the only one in a foreign language;

c) twenty-four articles, written alone or in co-authorship. These articles are published in unreviewed Bulgarian journals with scientific reviewing, in Bulgarian.

All publications of the candidate are in field of construction and have passed the process of scientific reviewing. That's why I accept them for review. There are no special separation declarations for the works and I accept that in the collective publications the authors participate equally.

3.1. Habilitation work - monograph

The monograph is entitled Reinforced concrete structural shear walls - anti-seismic "discs" and was published by the VSU in 2020 in a circulation of 90 copies. Its volume is 398 pages. 113 literature sources were used.

The monograph has two scientific reviewers - Assoc. Prof. Dr. Eng. Anita Handruleva and Prof. Dr. Eng. Nikolay Zhechev. Since the monograph has been published, their reviews were obviously positive. So here I will comment on it briefly.

From the title of the monograph, she focuses on the load-bearing walls of reinforced concrete, slang called "discs". Their main purpose is to withstand horizontal loads from wind and earthquake. And because, constructions with a load-bearing structure of reinforced concrete has a large mass, very often the important internal forces thing for walls are those caused by seismic impacts.

Chapter 1 discusses wind and earthquake loads on buildings and possible damage that they can cause on the constructive elements. Whether they are constructive or not.

In chapter 2 describes the technological processes required for the implementation of monolithic vertical reinforced concrete walls. I agree that the civil engineer - constructor must know all the stages in the realization of his facility, from the initial calculations and the lines on the empty sheet, until the last finishing elements of the coating. I have the feeling that Chapter 2 is slightly out of the main focus of this monograph, namely - reasonable, reliable and economical structural design of vertical walls.

Chapter 3 provides a historical overview of vertical load-bearing walls. The beginning of the science of seismic analysis is briefly described, and is continued with developing of design norms in order to end with the practice and development of the design process.

Chapter 4 provides general informations for wall systems. The differences with frame systems, a shear wall definition is given, are described, the principles for capacitive design are considered, etc.

In chapter 5 is shown analyzes and constructions of the walls according cross section in a plan, from what they are solid or with holes in them. This chapter is basic and not accidentally extends to 265 pages (out of a total of 398). For each of the constructive forms applied in practice, an analysis is made, which ends with conclusions.

In Chapter 6, parametric analyzes of buildings with reinforced concrete construction and monolithic wall systems are made. Each of these completed with results and conclusions.

Chapter 7 sets out methods for controlling the horizontal impacts. Here briefly described the seismic insulations, damping devices, the adaptive systems. Unfortunately, due to their high price, the considered control methods are almost unknown to the Bulgarian special practice.

Chapter 8 describes the analyzing of the reinforced concrete shear wall for seismic impact, according to Ordinance № RD-02-20-2 of 2012. I think that, this part of the monograph is redundant. Instead of focusing on the morally obsolete Ordinance № PД-02-20-2 of 2012 and the even older Norms for design of concrete and reinforced concrete structures from 1987, the author should focus on the current BDS EN 1992-1 - 1: 2005 and BDS EN 1998-1: 2005. In this way he could attract some of the old civil engineers - constructors to the Eurocode cause.

The monograph concluding with five pages conclusion and with twelve claims for scientific - applied contributions. Of these, I cannot accept the first two and the last three, see pages 388 ÷ 389 of the monograph. There is no science in classifying walls by shape and systematizing different types of walls. This also applies to the shown of materials (fragments of scientific reports and diplom theses), with the participation of students. Where is the scientific research here? And the the acquired new knowledge? I

have no remarks about the other claims.

3.2. A monograph that is not presented as a main habilitation work.

The monograph is entitled "Constructors for civil engineers - the prefabricated one-storey buildings of reinforced concrete elements" and was published by the VSU in 2019 in a circulation of 300 copies. Its volume is 388 pages. 103 literature sources were used.

The scientific reviewers of the monograph are two the same as above - Assoc. Prof. Dr. Eng. Anita Handruleva and Prof. Dr. Eng. Nikolay Zhechev. In case of positive reviews and a published monograph, I will review to it briefly.

From its title, it focuses on one-story buildings with a prefabricated reinforced concrete skeleton. The topic is an up-to-date for because of large volume of construction of warehouses and hypermarket stores. This shows that with the modern methods of production and prestressed structures, the buildings with a prefabricated reinforced concrete structure, price competitors of steel structures with large openings are determined.

This book examines all prefabricated structural elements of the single-storey buildings - foundations, columns, roof beams, stabilizing connections and panels. The whole information is generously illustrated with photos. It may be said that the pictures of the author in this book does not increase its scientific value. In addition, for easier perception of information, it is appropriate in the text to indicate part of the words of the author connected with illustrated a specific photo.

In Part 7 of Chapter 4, entitled "Postulates of NPSSZR-2012" there is again a fixation on Ordinance № RD-02-20-2 of 2012. Again, I will say that in my opinion this is unnecessary, as it is a step backwards. It is much more logical to pay attention to modern standards for design of building structures, the so-called Eurocodes. They provide much more security to buildings and facilities, and it's high time the adult part of the engineering guild learned.

Chapter 5, entitled "A Brief Commentary - A Reflection on the Present and Future of Prefabricated Elements. Comparison with the Recent Past ", together with Chapter 6 "Conclusions ", is the most interesting part of the monograph. In these chapters is the author's view of the possibility of using different prefabricated reinforced concrete elements. Attention is paid to these positive and negative sides. Some of the guidelines for their future development are given.

The monograph ends with five claims for scientific and applied contributions. Of these, I cannot partially accept the third, see page 379 of the monograph. "Projects reviewed and defended at VSU" cannot be treated as a scientific contribution. Where is the new here? The same applies to forth, where "methodical (step-by-step) decision has been implemented, according to Ordinance № RD-02-20-2". I have no remarks about the other claims.

3.3. Self-written article, who to be published in the journal IOP Conference Series: Materials Science and Engineering

The article is entitled "Computer Modeling in R.C. shear walls - comparative analyzes at different values of the reduction coefficient. Values of internal forces. "And has a volume of 9 pages. It is written in English. In short, the remarks they have about it are:

a) the term "finite element" in English is known as a "finite element" and not as a "end element" as written in the article;

b) the conclusion must be written in "straight" text and relate specifically to the article. Transferring more information to other, external sources is unacceptable.

However, as for the first article in a foreign language, which will be published in an internationally peer-reviewed magazine, it can be said that the level is decent.

3.4. Twenty-four articles written alone or in co-authorship.

As it became clear above, these articles have been published in unreferenced Bulgarian journals with scientific evaluation, in Bulgarian. Seven of them were written independently and the rest in co-authorship.

Although the article "Determination of the load-bearing reinforcement in the end zones in reinforced concrete walls" was presented at the XIII INTERNATIONAL SCIENTIFIC CONFERENCE VSU'2013 and then published in the collection of reports, I do not find any scientific research in it. At the same time, this is not a review. Therefore, for me it has no scientific value.

The co-authored report "Design of reinforced concrete silos in accordance with Eurocodes" for the VII International Scientific Conference "ARCHITECTURE, CONSTRUCTION - MODERNITY", published in May 2015, is essentially "fragments of its analysis of the steel group. batteries. Data from static and dynamic examination are displayed. The article is accompanied by formulas, schemes and conclusions. ". It shows individual parts of the calculation note. Something like a guide. There is no scientific value for me.

The same applies to the report "Design of reinforced concrete water towers in accordance with NPSSZR-2012 and Eurocodes" presented at the same VII International Scientific Conference "ARCHITECTURE, CONSTRUCTION - MODERNITY" in Varna.

The articles "Furniture enterprises - innovations in the design" and "Volume-planing making solutions for wine-producing buildings on inclined terrains" were co-authored with Assoc. Prof. Dr. Arch. Borislava Mancheva - Velkova and Assoc. Prof. Dr. Arch. Dimitar Vlasarev. Characteristic of them, as well as of the majority of articles written by architects, is that in their abundance are used many words and colorful images. This is at the expense of the complete lack of scientific approach and mathematical apparatus for analyzing problems in civil engineering. These articles have no scientific value in this competition for the academic position of "Associate Professor" in the scientific specialty "Building Structures" ("Reinforced Concrete Structures").

The other articles are with an acceptable scientific - applied level. As for Bulgaria.

4. Scientific and scientific - applied contributions of Ch. Assistant Dr. Eng. Stanislav Tsvetkov

The scientific and the scientific- applied contributions of the candidate for the academic position of "associate professor" are best described in his monographs. More significant of them are:

- a) interaction diagrams for II-shaped cores have been drawn up;
- b) are analyzed with different geometry sizes connecting beams, a correction being proposed in the formula for determining the area of reinforcement, as well as the application of truss structures;
- c) a proposal is made for the level of ductility DCH to use the existing reinforcement as "active" in the formula and not to look for a new, additional one;
- d) a critical analysis of the kinds of (prefabricated) structural elements in terms of applicability and degree of efficiency has been performed.

5. Critical remarks

Critical remarks can be sent to Dr. Tsvetkov:

- a) except for one publication, all others are in Bulgarian. So limits the potential circle of readers. Research and the results obtained should be more easily accessible so that it is not constantly applied to change previously discovered ones;
- b) as a result of this publishing policy, all citations are made by Bulgarian authors. Moreover, most of them are colleagues of Dr. Tsvetkov at VSU "Lyuben Karavelov" (only two of the citing articles were written by people outside VSU). You can see an even greater restriction on the candidate's readers only to his colleagues and students. What scientific activity and its popularization are we talking about in general?

6. Teaching work

Stanislav Tsvetkov has been part of VSU "Lyuben Karavelov" for many years. From 2003 to 2011 as a student, and from 2010 to the present day he is a teacher. Initially he was a full-time employee, then he was part-time, and from 2019 to the present day he is a chief assistant at the Department "Building Structures" at the Faculty of Civil Engineering. His main activity as a teacher can be summarized as follows:

- a) consultations and corrections of students in their courses and diploma projects;
- b) conducting exercises on:
 - Reinforced concrete, Reinforced concrete structures and Special reinforced concrete structures;
 - Steel structures and wooden structures.
- c) from 2019, when he was appointed to the position of "chief assistant", Dr. Tsvetkov gives lectures on:
 - Masonry structures;
 - Automation of building - structural design, Modeling of building structures.

Impresses the wide range of disciplines that Dr. Tsvetkov has mastered at the level of a teacher in higher education. Apparently he doing well with this, because graduate students led by him received awards in the competition for the best diploma project "Kolyu Ficheto" (respectively: first, second and third place).

7. Personal impressions

So far I have only seen Dr. Tsvetkov once. For this reason, my impressions are very white, but though - positive.

8. Conclusion

Based on the analysis of the scientific and teaching activities of Ch. Assistant Dr. Eng. Stanislav Tsvetkov, I think that he meets the requirements of the Regulations for the implementation of the law on the development of academic staff in the Republic of Bulgaria. In addition, I think that Dr. Tsvetkov is an enthusiastic researcher who with a little help can become a promising scientist at the European level. As a result, I recommend to the members of the Esteemed Scientific jury to propose to the Faculty Council of the Faculty of Civil Engineering of VSU "Lyuben Karavelov", Dr. Stanislav Tsvetkov to be elected to the academic position of "Associate Professor" in the professional field 5.7. "Architecture, Construction and Geodesy", scientific specialty "Building Structures" ("Reinforced Concrete Structures"), for the needs of the Department "Building Structures".

May 17, 2021
Sofia

Signature:
/ Assoc. Prof. Dr. Eng. L. Zdravkov /