R E V I EW

by

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REGARDING:

Materials submitted for participation in a competition for the academic position of „**PROFESSOR"** under the Act on Development of the Academic Staff in the Republic of Bulgaria (ADASRB) in:

- **Field of higher education:** 5. Technical Sciences;
- **Professional field:** 5.7. Architecture, Civil Engineering, and Geodesy;
- **Scientific specialty:** Construction Materials, Products, and Technologies for their Manufacture.

This review was prepared in my capacity as:

- Member of the Scientific Jury, appointed by Order No. 603 dated September 30, 2026, of the Rector of Varna Free University "Chernorizets Hrabar" (VFU "Ch. Hrabar"), pursuant to Art. 4, Para. 2 of ADASRB (State Gazette, issue 38 of May 21, 2010, as amended and supplemented) and Art. 3 of Ordinance No. 3 on the Academic Staff of VFU "Ch. Hrabar";
- Reviewer in the competition, by decision of the Scientific Jury from its first meeting held on October 7, 2026.

One candidate is participating in the competition for the academic position of "Professor", announced in the State Gazette, issue 69 of July 31, 2026, to fill a position in the Department of Building Construction at the Faculty of Architecture (FA) of VFU "Ch. Hrabar" :**Assoc. Prof. Rositsa Petkova-Slipets, PhD, Eng.**

She completed her higher education at the Technical University of Varna. She defended her doctoral dissertation at the same university in 2004 and she was awarded an academic degree under the Act on Scientific Degrees and Scientific Titles (ASDST) – today the educational and scientific degree "Doctor" (PhD) under the Act on Development of the Academic Staff in the Republic of Bulgaria (ADASRB).

Since 2006, she has been employed at VFU "Ch. Hrabar", working as an Assistant Professor during the period 2006–2009. From 2009 to 2011, she was a Senior Assistant Professor. In 2011, she was appointed to the academic position of "Associate Professor". She has been actively involved in administrative and expert activities. From 2009 to 2019, she served as the Scientific Secretary of the FA. From January to August 2020, she was Vice Dean of the FA, and from September 2020 to the present, she has been the Dean of the FA (second term).

She is registered in the register of NACID (National Centre for Information and Documentation) as a habilitated person with scientometric indicators since 2014 (Annex 5.5). She has participated in the Erasmus+ program with 10 mobility visits at universities in the Czech Republic, Slovakia, Latvia, Russia, Romania, and Georgia. She participated in international seminars on *HR Excellence in Research* organized by the EU Directorate-General for Research and Innovation in Lisbon (July 3–6, 2013), Brussels (October 8–10, 2014), Zagreb (June 7–10, 2017), and Budapest (April 27–30, 2022).

Assoc. Prof. Rositsa Petkova-Slipets has received a number of **AWARDS**, including: VARNA AWARD (collective) for achievements in educational and research activities of the FA at VFU "Ch. Hrabar", 2026; GOLD-PLATED BADGE OF HONOR "Ch. Hrabar" for high professionalism, commitment, and dedication to the mission of VFU "Ch. Hrabar", 2026; BADGE OF HONOR – SILVER "20 Years of VFU 'Ch. Hrabar'", 2011.

1. GENERAL DESCRIPTION OF THE SUBMITTED MATERIALS

The candidate, Assoc. Prof. Rositsa Petkova-Slipets, PhD, Eng., is participating in the competition for the academic position of "Professor" with research output produced since her appointment to the academic position of "Associate Professor" in 2011, namely:

- **Monograph:** 1 volume;
- **Electronic Textbook:** 1 volume in two editions;
- **Scientific Articles:** 23 publications;
- **Scientific and Informational Articles:** 4 publications;
- **Student Articles** under the candidate's supervision: 2 publications.

The scientific articles can be categorized as follows:

By language of publication:

- In Bulgarian: 7 publications;
- In English: 13 publications;
- In Ukrainian: 3 publications.

By authorship (sole author vs. co-authored):

- Sole author: 2 publications;
- Co-authored: 21 publications.

By position in co-authored articles:

- Of the co-authored publications, the candidate is the first author in 9, second author in 8, third author in 2, fourth author in 1, and fifth author in 1 publication, which demonstrates the leading role of Assoc. Prof. Petkova-Slipets in the preparation and publication of these scientific articles.

2. REFLECTION OF THE CANDIDATE'S PUBLICATIONS IN LITERATURE (KNOWN CITATIONS)

A list of identifies citations (cited work in a citing publication) has been provided. 9 of the candidate's scientific publications have received a total of **87 citations**. The distribution of the identified citations by category is as follows:

- **Citations in Scopus and Web of Science:** 60, of which Q1 – 22, Q2 – 11, Q3 – 3, Q4 – 1;
- **Citations in non-peer-reviewed publications: 23;**
- **Citations in monographs or edited volumes: 4.**

The analysis indicates that the majority of citations (nearly 70%) are indexed in international databases – Scopus and Web of Science. She is registered in the following research databases: Scopus ID – 57205355298; Web of Science ID – R-2905-2017; ORCID ID – 0000-0003-2449-7173; ResearchGate – ROSITSA PETKOVA-SLIPETS. Her h-index values are as follows: Scopus – 4 (Annex 5.1); Web of Science – 3 (Annex 5.2); Google Scholar – 5 (Annex 5.3); and ResearchGate – 5 (Annex 5.4). This indicates that the publications of Assoc. Prof. Rositsa Petkova-Slipets have been cited internationally, her research output is valued, and she is recognized as an author within academic circles.

3. GENERAL CHARACTERISTICS OF THE CANDIDATE'S ACTIVITIES

3.1. Teaching and Educational Activities (Work with Students and Doctoral Students)

Assoc. Prof. Rositsa Petkova-Slipets, PhD, Eng., teaches a number of courses in the curricula of various degree programs at the FA of VFU "Ch. Hrabar". These include:

Compulsory courses for Bachelor's and Master's degrees (following secondary education):

- *"Building Materials - Part 1"* (30 lectures) and *"Building Materials - Part 2"* (30 lectures, 30 practical exercises) for the degree programs "Building Construction", "Water Supply and Sewerage", and "Civil Engineering";
- *"Building Materials and Technologies"* (30 lectures, 15 practical exercises) for the "Architecture" degree program;
- *"Building Materials and Their Behavior in Fire"* (30 lectures, 30 practical exercises) for the "Fire and Emergency Safety" degree program;

- *"Design Materials and Technologies"* (15 lectures) for the "Interior Design" degree program;
- *"Machine Elements"* (30 lectures) for the "Fire and Emergency Safety" degree program (2020–2022).

Compulsory courses for Master's degree (following higher education):

- *"Energy-Efficient Construction"* (30 lectures) for the "Civil Engineering" Master's program;
- *"Materials for Additive Technologies"* (30 lectures, 30 practical exercises) for the joint Master's program "3D Technologies for Design and Production" at TU Varna and Plovdiv University "Paisii Hilendarski" (2022–2023);
- *"Low-Carbon Products and the Green Deal"* (30 lectures, 30 practical exercises) for the joint Master's program "Ecotechnological Systems in Industry" at TU Varna and Plovdiv University "Paisii Hilendarski" (2022–2023);
- *"Modern Building Materials"* (15 lectures) for the "Structural Engineering" Master's program (until 2022);
- *"Building Materials and Their Behavior in Fire"* (15 lectures) for the "Forensic Fire Investigation" Master's program (2018–2019);
- *"Building Structures and Their Behavior in Fire"* (15 lectures, 15 practical exercises) for the "Forensic Fire Investigation" Master's program (2018–2019).

Lectures in English have been developed for some of these subjects.

She is actively involved with students regarding extracurricular activities—such as participation in various architectural competitions.

Her work in supervising PhD students is serious and thorough, as this currently represents the third cycle of higher education in our country, leading to the educational and scientific degree "Doctor" (PhD) (although this activity can also be attributed to scientific research).

She is the supervisor of 5 PhD students – 1 graduated with a defended dissertation, 1 removed from the program without defense, and 3 currently active. All are enrolled in the PhD program "Building Materials, Products, and Manufacturing Technologies":

- **Arch. Eng. Ivan Enimanev** – doctoral student pursuing independent study . He defended successfully his doctoral dissertation on February 16, 2024.
- **Eng. Sinan Oguz Terzi** – doctoral student pursuing independent study. Deregistered without the right to defend a dissertation in 2026.
- **Arch. Stefan Vlahov** – full-time PhD student. Enrolled on September 11, 2025.
- **Eng. Vanyo Valkov** – part-time PhD student. Enrolled on October 30, 2025.
- **Eng. Jefferson Mandela Lipot** – full-time PhD student. Enrolled on July 9, 2026.

This demonstrates sustainable development in her teaching and supervisory activities.

3.2. Scientific and Applied Research Activity

I highly value the **Monograph** included in the competition materials: *Structure of Materials: Hierarchical Levels, Research Methods, Relation to Properties*, Varna: VFU "Ch. Hrabar", 2026. ISBN 978-954-715-818-4. This work fulfills an important regulatory requirement for a published monograph. It is an original piece of work with high theoretical and applied contributions. It can be used *"as a methodological guide for researchers and practicing engineers, and as a reference source in expert activities. The comparative tables of methods and the review of research standards possess independent reference value. Structural analysis is established as a tool for ensuring the quality of building materials and meeting sustainability and resilience requirements in construction."* The monograph is illustrated with theoretical and practical examples that enrich the author's analyses, evaluations, and contributions. Undoubtedly, this work will benefit a wide audience—students, PhD candidates, specialists, and anyone interested in the production and application of building materials.

The candidate's **electronic textbook** also deserves serious attention: *Building Materials* (1st edition), Varna: VFU "Ch. Hrabar", 2009, ISBN 978-954-715-703-3; *Building Materials* (2nd edition), Varna: VFU "Ch. Hrabar", 2026, ISBN 978-954-715-814-6. It is *"a synthesis of fundamental knowledge in building materials science with practical information required for engineering education and the professional preparation of students. It was developed as a textbook for learners and practitioners in the construction sector. ...A major merit of the textbook is its integration of national and European standards when examining the characteristics and test methods of building materials."*

The electronic textbook *Building Materials* (in two editions) was designed for students in Architecture, Building Construction, Water Supply and Sewerage, and Fire and Emergency Safety. It aligns with the syllabi for this subject at VFU "Ch. Hrabar", but can also be utilized by students from other programs and universities, as well as by industry professionals.

Her scientific publications (23 items) reflect important aspects of building materials through thorough analyses, evaluations, and conclusions. They are published in reputable journals in Bulgaria and abroad.

3.3. Scientific and Expert Activity

Her scientific expert work includes:

- Participation in teams for the development and implementation of university, national, and international projects: Project Coordinator – 2 participations; Senior Researcher – 1 participation; Researcher – 1 participation; Expert – 3 participations; Project Team Member – 2 participations. Outside these projects, Assoc. Prof. Rositsa Petkova-Slipets has participated in preparing 13 additional project proposals.
- Participation in establishing specialized laboratories: "Structural Analysis", "Thermophysical Studies", "Mechanical Testing", and a Laboratory Complex for Additive Technologies within the Technology Transfer Office at VFU "Ch. Hrabar".

The competition materials include documents confirming the candidate's expert activities: 3 instances of participation in the technical evaluation of project proposals for the National Innovation Fund (NIF); 9 Official Orders for work as coordinator or member of project teams; and over 20 Certificates and Diplomas from participation in various competitions.

The expert activity of Assoc. Prof. Rositsa Petkova-Slipets, PhD, Eng., is diverse and broad in scope. This activity undoubtedly deserves high recognition as it demands extensive knowledge and deep domain expertise.

4. CONTRIBUTIONS (SCIENTIFIC, SCIENTIFIC AND APPLIED, AND PRACTICAL)

The contributions of Assoc. Prof. Rositsa Petkova-Slipets, PhD, Eng., can be summarized across several interconnected areas of research:

Scientific Contributions:

- An original methodological framework has been developed for the multilevel investigation and engineering interpretation of the relationship between "composition – technology – structure – properties – performance in service" in building materials (Monograph and Scientific Publications Nos. 10.1_2, 10.1_3, 10.1_8, 10.1_9, 10.1_10, 10.1_11, 10.1_13, 10.1_15, 10.1_19, 10.1_20, 10.1_22);

- Relationships between the structure and the range of properties of various new types of building and insulation materials have been investigated and established (Monograph and Scientific Publications Nos. 10.1_2, 10.1_3, 10.1_4, 10.1_5, 10.1_7, 10.1_8, 10.1_9, 10.1_10, 10.1_11, 10.1_12, 10.1_13, 10.1_14);

- An original approach has been developed for applying a modified transient heat source method to comprehensively determine the thermophysical properties of building materials (Scientific Publications Nos. 10.1_2, 10.1_3, 10.1_4, 10.1_5, 10.1_7, 10.1_8, 10.1_9, 10.1_10, 10.1_11, 10.1_12, 10.1_13, 10.1_14, 10.1_22).

Scientific and Applied Contributions:

- A comprehensive assessment of environmentally friendly composites containing natural and waste-derived additives for energy-efficient building envelope elements has been developed and experimentally tested (Scientific Publications Nos. 10.1_4, 10.1_7, 10.1_5);

- A functional simulation methodology has been developed to predict the thermal behaviour of building envelope structures made from alternative and innovative materials. The methodology has been experimentally validated (Scientific Publications Nos. 10.1_4, 10.1_6, and Applied Research Project 12IF-02-04/07.12.2021, *"Development of an Innovative Facade System Based on Double Skin Facade Technology"*, NIF – 12th session; 7 December 2021 – 30 June 2023);

- The relationship between manufacturing technology, structure and thermal degradation of polyester insulation materials has been analysed, enabling the prediction of their fire performance based on thermal analysis data (Scientific Publications Nos. 10.1_2, 10.1_11);

- The author's argument regarding the need to develop a clear interpretation of the structural characteristics of iron–carbon alloys used in construction and cement-based concretes has been substantiated (Monograph).

PracticalContributions:

- The use of waste products as additives in clay bricks and wall composites has been proposed and experimentally substantiated as a means of reducing thermal conductivity and increasing heat capacity, with recommendations concerning the optimal additive content (Scientific Publications Nos. 10.1_4, 10.1_5, 10.1_7);

- Comparative data and recommendations have been provided for the use of lightweight concrete in energy-efficient buildings (Scientific Publications Nos. 10.1_8, 10.1_9, 10.1_10, 10.1_12), among other contributions.

The contributions of Assoc. Prof. Rositsa Petkova-Slipets, PhD, Eng., are significant. They can be summarized as:

- **Enrichment of existing knowledge** through confirmatory findings and proving existing facts/problems via new methods;
- **Application of scientific achievements** by implementing results in practical industry settings and in educational processes (lectures and practical sessions).

The contributions identified by the candidate in her research are appropriately formulated and reflect the full scope of her scientific activities.

5. ASSESSMENT OF THE CANDIDATE'S PERSONAL CONTRIBUTION

The personal contribution of Assoc. Prof. Rositsa Petkova-Slipets, PhD, Eng., in the submitted theoretical and applied materials is predominant. Her active personal involvement is clear in all publications—a result of years of dedicated research in building materials. The monograph and textbook (published in two editions) represent standalone personal contributions that address current issues within her academic specialty.

6. CRITICAL REMARKS

I have no critical remarks regarding the research, teaching, or expert activities of Assoc. Prof. Rositsa Petkova-Slipets, PhD, Eng.

7. PERSONAL IMPRESSIONS

I have known Assoc. Prof. Rositsa Petkova-Slipets, PhD, Eng., for over a decade, since I joined VFU "Ch. Hrabar" in 2014. During my tenure as Dean of the Faculty of Architecture (2014–2019), I had the opportunity to observe her development in research and teaching, as well as her expert and administrative work as Scientific Secretary and, currently, as Dean of the Faculty of Architecture.

I have prepared documentation for her performance evaluations, which were completed and approved with the highest possible ratings by the Faculty Council of the Faculty of Architecture at VFU "Ch. Hrabar".

In my interactions with Assoc. Prof. Rositsa Petkova-Slipets, I have found her to be a person of high general and professional culture. Attentive and well-disposed towards students and ethical in her relations with colleagues, she is an exemplary educator who enjoys the attention and respect of students, doctoral candidates and professionals from various disciplines and generations.

I consider her an erudite scholar with an established presence in Bulgarian construction research.

8. RECOMMENDATIONS

I have two recommendations for Assoc. Prof. Rositsa Petkova-Slipets, PhD, Eng.:

1. To continue preparing and publishing scientific articles and research papers in Bulgaria and abroad, particularly in journals with an Impact Factor. This would help increase the number of citations of her research in international professional literature and further strengthen her recognition as a scholar of high standing in her field.

2. To prepare and defend a dissertation for the award of the higher scientific degree of Doctor of Sciences (DSc) under the Act on the Development of the Academic Staff in the Republic of Bulgaria (ADASRB). I believe that she has the potential and the necessary capabilities to achieve this.

This recommendation is not directly related to the present competition, but I have taken the liberty of including it in this review because I am convinced that the candidate is capable of fulfilling it. It would represent another milestone in her professional development and a source of personal satisfaction, even if only by proving to herself that her efforts have been worthwhile.

9. CONCLUSION

An analysis of the activities of Assoc. Prof. Rositsa Petkova-Slipets, PhD, Eng., based on Annex No. 1 to the Act on the Development of the Academic Staff in the Republic of Bulgaria (ADASRB) and the relevant regulations of VFU "Ch. Hrabar", yields the following results:

Indicator Group	**Description**	**Required Points**	**Achieved Points**
Group A	Dissertation for the award of the	50	**50**

Indicator Group	Description	Required Points	Achieved Points
	educational and scientific degree of Doctor (PhD)		
Group B	Habilitation Work – Monograph	100	**100**
Group C	Scientific publications in journal indexed and abstracted in internationally recognised scientific databases, and in non-indexed peer-reviewed publications	200	**267.99**
Group D	Citations or reviews in scientific publications indexed and abstracted in internationally recognised scientific databases	100	**658**
Group E	Participation in international scientific or educational projects; awards from competitions organised by national professional forums and organisations	150	**475**
TOTAL		**600**	**1550.99**

Conclusion: The total points achieved by Assoc. Prof. Rositsa Petkova-Slipets, PhD, Eng.,through her overall activities therefore exceed the minimum requirement for the academic position of "PROFESSOR" by more than **two and a half times**.

Summarising her professional and academic achievements, it can be concluded that she has demonstrated active involvement in all the following area:

- **Research and publication activities** (published monograph, textbook, and scientific articles);
- **Teaching activities** (developed textbook, lecture courses, and lab syllabi);
- **Expert and administrative activities.**

In addition to the quality of the submitted materials, the professional presentation of her portfolio deserves recognition, reflecting self-respect and respect for the Scientific Jury.

Assoc. Prof. Rositsa Petkova-Slipets, PhD, Eng., demonstrates a balance of research capability, pedagogical skill, and administrative leadership. Her expertise and active work with students and doctoral candidates make her an invaluable asset to the Department of Building Construction, the Faculty of Architecture, and VFU "Chernorizets Hrabar" as a whole.

In view of the above, I vote **"FOR"** with full confidence and recommend to the Faculty Council of the Faculty of Architecture at Varna Free University "Chernorizets Hrabar" that **Assoc. Prof. Rositsa Petkova-Slipets, PhD, Eng.** be appointed to the academic position of **"PROFESSOR"** in:

- **Field of Higher Education:** 5. Technical Sciences
- **Professional Field:** 5.7. Architecture, Civil Engineering, and Geodesy
- **Scientific Specialty:** Building Materials, Products and Technologies for their Manufacture

Reviewer:.....

Corresponding Member of the Bulgarian Academy of Sciences, Prof. Atanas Kovachev, DSc., Arch.
Doctor Honoris Causa of the University of Forestry
Honorary Professor of MARKHI (Moscow Architectural Institute) and VFU "Ch. Hrabar"

Sofia – Varna, 20 October 2026