

REVIEW

On a dissertation work for obtaining the educational and scientific degree „doctor“ in field of higher education 5. Technical sciences, professional field 5.13. General engineering, scientific specialty „Ergonomics and industrial design“.

Author of the dissertation: Eng. Ralitsa Georgieva Stavreva-Pancheva, full-time doctoral student at the Department of Interior and Furniture Design at the Faculty of Forest Industry of the University of Forestry – Sofia.

Dissertation title: „Design and problems of small urban dwelling for one occupant“.

Member of the scientific jury: Corresponding Member of the BAS. Prof. DSc. Arch. Atanas Dimitrov Kovachev, University of Forestry – Sofia, field of higher education 5. Technical sciences, professional field 5.7. Architecture, Construction and Geodesy, scientific specialty „Territorial and Landscape planning and Urban Planning“, appointed a member of the scientific jury by order ZSP № 161 of 11-th April 2022 by the Rector of University of forestry and reviewer of the dissertation, elected at the first meeting of the scientific jury, held on 15-th April 2022.

1. Brief introduction of the candidate

Ralitsa Georgieva Stavreva-Pancheva was born in Sofia. She graduated with honours from the National Educational Complex of Culture with a lyceum for study of Italian language and culture – Sofia. She received her higher education at the University of Forestry – Sofia, Bachelor's degree (2002) and Master's degree (2004) in Engineering Design (Interior and Furniture Design). She has completed a number of computer, language and professional courses, including „Introduction to 3D Studio VIZ 4.0“ at UACEG – Sofia.

Since 2003 she has been practicing her specialty, and in 2014 founded a company with activities in the field of interior and furniture design where she is currently Chairman of the Board and project manager. She has extensive professional experience. She has realised a lot of her own interior projects of residential and public sites both in Bulgaria and abroad.

In 2019, Eng. Ralitsa Stavreva-Pancheva is enrolled as a full-time doctoral student at the Department of Interior and Furniture Design at the Faculty of Forest industry at University of Forestry with supervisor Assoc. Prof. Dr. Arch. Stella Tasheva.

She uses Italian, English, German, Latin and Russian.

2. General characteristics of the dissertation

The dissertation on the topic „**Design and problems of small urban dwelling for one occupant**“ consists of: 451 pages; 40 tables; 193 illustrations, including graphic statistics images; 29 equations; bibliographic list of 398 sources, out of which 51 used and 347 used and quoted. Of these, 63 in Cyrillic and 335 in Latin. It is structured in three main parts. Its front matter includes a title leaf, a declaration of originality, acknowledgements, table of content, a list of illustrations, a list of tables, a list of abbreviations and symbols, glossary, standards and languages. The body of thesis includes: introduction, 4 sections, conclusion – a summary of the results obtained and list of bibliographic references of quoted and used information resources. Its concluding part consists of 4 annexes, including publications related to the topic of the dissertation work.

3. Relevance of the topic of the dissertation

The need for the scientific research is justified by the lack of generalising paper on the main problems which determine the need for change in the type and shape of housing structures as well as changes in the demographic structure of the population which requires analysis of the changing world and more specific study of the demographic image of society. The latter, in turn suggests the identification of consumer groups corresponding to the contemporary housing forms in the sense of the dissertation issue. Based on the analysis of their specific needs it is necessary to derive correct guidelines for furniture and interior design in the context of a small dwelling for one occupant. All this argues and defends the **relevance of the dissertation**.

4. Degree of knowledge of the state of the problem and creative interpretation of the literature review

The doctoral student demonstrates excellent knowledge of the problem. The literature review is comprehensive and creatively interpreted for the study.

5. Purpose, tasks, hypotheses and research methods. Correspondence of the chosen research methodology with the set goal and tasks of the dissertation work

The set in the dissertation work **goal of research** concerns the establishing the place of the small urban dwelling in the contemporary housing paradigm in the context of demographic, economical and ecological prerequisites and factors influenced its evolution in order to reveal the trends in interior and furniture design and to develop guidelines for the environmental design corresponding to the needs of the identified user groups.

In connection with the goal of the research and given the lack of a uniform definition any dwelling with an area below or 45.00 sq.m. is considered small.

In order to achieve the formulated purpose **12 tasks** are set for solving each of them is revealed in its entirety at the beginning of the section in which it is considered.

Object of research is the contemporary small dwelling in an urban environment designed for one occupant.

Subject of research is on the one hand – the architectural image and the interior environment of the small dwelling, and on the other – the trends and prospects of their sustainable development.

The main research thesis of the work is to reveal the possibilities of small urban dwelling both in connection with building a harmonious living environment with attention to human well-being and as a tool for dealing with serious demographic, economic and ecological problems, which determines its indisputable existence in the future.

In terms of **boundaries**, the research focuses on the analysis of small dwelling in urban areas as part of multi-family multi-storey residential buildings incl. housing units that can exist independently or in a multi-storey housing structure. Outside the scope of the study remain single-family residential buildings and other residential structures that do not possess the characteristics described in the scope of this study.

In the dissertation work **scientific research methods** are used in combination of three main groups: **general-logical, theoretical and empirical**.

General-logical research methods are applied for:

- Analysis of Bulgarian and foreign literature and factual information in the field of the researched object.
- Analysis of the historical development of the researched object in order to compile a unified author's classification based on inductive knowledge.
- Multi-component analysis of the development of small dwelling in urban areas: specifics, limitations and systematisation of consumer groups.
- Synthesis of the typology of small urban dwelling.
- Analysis of factual information and knowledge in order to apply a deductive approach in deriving guidelines for furniture and interior design in relation to the studied object.

Theoretical scientific research methods are applied for:

- Summarising information as a result of the acquired knowledge for the purposes of research and summarising data by applying a statistical approach.
- Hypothetical – deductive approach is applied to create a system of deductively related hypotheses from which statements of empirical facts are derived.

Empirical scientific research methods have been used to:

- Research of Bulgarian and foreign experience, literature and factual information in the field of the studied object in order to accumulate the necessary knowledge and data for the dissertation research.
- Carrying out of complex purposeful and systematically planned observation of the studied object in the context of conducted multicomponent empirical research based on statistical quantitative and qualitative research methods.

6. General characteristics of the dissertation work

The dissertation work consists of Introduction, Preamble, 4 chapters, Conclusion and 4 annexes.

Chapter One „Origin and historical overview of the small dwelling in an urban environment, first examples. Preconditions, factors and problems that influenced its evolution“ makes a literary review of the problem and is essentially an **analysis of the topic**.

Chapter Two „Status, development, trends and purpose of the small dwelling for one occupant in an urban environment. Contemporary examples. Housing policies and specific features of its architectural image and quality of its interior environment depending on its geographical manifestation and the identified demographic, economic and ecological factology. Connection of the small dwelling with the environment in the context of the identified ecological problems“ **is a synthesis material on the topic**.

Chapter three „Empirical research“ is structured as **results and conclusions from empirical research**. Using a complex methodological approach an empirical study was conducted among three hundred people which was subjected to statistical processing at several levels. Based on this multi-component results are derived which can be interpreted in many fields.

Chapter four „Functional solutions and guidelines for designing the interior environment of a small urban dwelling intended for one occupant in the context of the consumer groups identified in the study and the contemporary housing paradigm“ **is essentially a derivative and contributing part.**

7. Visualisation and presentation of the obtained results

In summary: the dissertation work „**Design and problems of small urban dwelling for one occupant**“ examines the state and trends of small urban dwelling in terms of its architectural image and interior environment in the context of the modern housing paradigm with attention to global demographic, economic and ecological preconditions and factors that influenced its evolution. Based on the significant volume of summarised, systematised and analysed Bulgarian and foreign literature and factual information it is possible to trace the state of the problem on a large scale which in turn allows to extract many dependencies and patterns.

The results obtained are presented in a convincing way and are illustrated with evidence material.

8. Discussion of the results and used literature

The results of the research are reasoned and defended. The used literature is comprehensive and shows the high awareness of the doctoral student on the topic of the dissertation work.

9. Contributions to the dissertation work

In the dissertation work **scientific, scientific and applied and applied** contributions are developed and defended.

Scientific contributions

- The place of the small urban dwelling for one occupant, its architectural image and interior environment in the modern housing paradigm in the sense of multi-storey residential buildings is revealed and the factors and prerequisites that influenced its evolution are systematised. Prospects for its sustainable development are outlined.
- The potential of contemporary small dwelling in urban environment as a tool for dealing with the demographic, economic and ecological problems identified in the study, which the humanity is witnessing in modern conditions of development, has been proven.
- Two main consumer groups with regard to the contemporary small urban dwelling for one occupant in the face of the generation of millennials and baby boom have been identified and their specific features have been identified.
- Complex information from foreign resources has been studied and summarised on the basis of which a unified definition and classification of the contemporary small dwelling for one occupant in an urban environment has been created and a multicomponent database in Bulgarian has been compiled.

Scientific and applied contributions

- A connection has been established between certain geographical areas and the identified demographic, economic and ecological factors underlying the concept of the development of the contemporary small dwelling for one occupant in an urban environment. Based on this information was systematised and a complex analysis was performed.

- Typologies of the contemporary small urban dwelling are systematised, distinguishing two main forms of housing: a single housing unit and a single room – both part of multi-storey housing structures.

- The typology of housing forms has been revealed which makes it possible to establish the advantages of modular built ones over conventionally built especially for the environment and for dealing with the local housing crisis.

- A methodology for conducting an empirical study has been developed as a result of which multi-component results have been obtained – the attitudes of Bulgarians at the level of the studied aggregation to the contemporary small urban dwelling for one occupant and its interior have been revealed.

- Innovative materials and technological furniture solutions have been discovered and systematised as a means of dealing with the identified problem – the reduced living space of the small dwelling and the possibilities for creating an effective interior design have been clarified.

- Complex guidelines for the design of the living environment of the small urban dwelling have been developed in accordance with the established specifics of the needs of the identified consumer groups – occupants.

Applied contributions

- An album of contemporary examples of furniture solutions and systems visualised with illustrative material which would be useful for updating and enriching the training in „Engineering Design“ at the University of Forestry – Sofia and other interested parties in the field of interior and furniture design is developed.

- A structured questionnaire has been developed as a key tool for gathering empirical information which would be useful for further researches.

- A statistical analysis of the data from the conducted empirical research was performed which can be interpreted in a wide range of fields.

10. Assessment of the degree of personal participation of the doctoral student in the contributions

The contributions of the dissertation work are personal deed of the doctoral student.

11. Recommendations

(1) I do recommend the dissertation work to be published as an independent monograph in Bulgarian and if possible in a foreign language. It will benefit a wide range of users – scientists, doctoral students, students and specialists in various fields working on the topic.

(2) Despite the sufficient in quantitative and qualitative terms number of publications (even exceeding the required minimum) for educational and scientific degree „Doctor“, to Eng. Ralitsa Stavreva-Pancheva I have a recommendation to continue in her future work the development and publication of scientific articles and papers in Bulgaria and in abroad in **referenced and indexed scientific editions** included in „*world-famous databases of scientific information*“ and especially in **journals with Impact Factor**, where an independent publication brings the author a high number of points (for inclusion of Bulgarian scientists with their scientific output in NACID), as well as in „*monographs and collective volumes with scientific review*“.

(Regarding the second recommendation: Increasing her scientific output in quantitative terms and publishing materials in authoritative scientific editions will allow her to achieve greater citations in Bulgarian and foreign scientific literature which will bring her recognition as a scientist with high positions in the professional field in which she works. I am convinced that she has the potential for this activity).

12. Critical remarks and questions

I do not have any **critical remarks** to the doctoral student on the developed dissertation work. I have the following **questions**:

(1) How do you see the development of the small dwelling intended for a one occupant in an urban environment and do you think that non-traditional housing forms have a future?

(2) What are the trends in terms of the characteristics of small living spaces and the organisation of their interior environment?

(3) Do you think that the work „Design and problems of small urban dwelling for one occupant“ outlines directions for new research in various scientific fields in which it could be further developed?

13. Published articles and quotations

The following articles have been published on the topic of the dissertation work:

Publication in a scientific edition, referenced and indexed in a world-famous database with scientific information:

(1) **Stavreva-Pancheva**, Ralitsa. *Minimalist housing units. Eco and smart trends* [online]. – In: International Scientific Journal – Innovation in Woodworking industry and engineering design – University of Forestry: [NACID ID № 590], Sofia, volume 9, Issue 2, 2020, pp. 55 – 66. [Viewed 21.03.2022]. [ISSN 1314 – 6149; eISSN 2367 – 6663]. [Web of Science (2017-) (CABI)]. Available from: <http://www.scjournal-inno.com/en/article-373.htm>

Publications in scientific editions with scientific review:

(1) **Stavreva-Pancheva**, Ralitsa. *Demographic trends and housing needs: policies and facts* [online]. – In: Scientific journal „NAUKA (SCIENCE)“ – Union of Scientists in Bulgaria: [NACID ID № 2178], Sofia, volume 31, book 2, 2021, pp. 65 – 72. [Viewed 21.03.2022]. [ISSN 0861 – 3362; eISSN 2603 – 3623]. Available from: <http://spisanie-nauka.bg/arhiv/2-2021.pdf>

(2) **Stavreva-Pancheva**, Ralitsa. *Modular construction for high-rise buildings: prospects for sustainable development* [online]. – In: Proceedings of 14-th national scientific conference with international participation „Ecology and health“: [NACID ID № 2334], Plovdiv, 2021, pp. 156 – 162. [Viewed 21.03.2022]. [ISSN 2367 – 9530 (CD/DVD)]. Available from: <https://hst.bg/ ECOLOGY%20AND%20HEALTH%202021.pdf>

(3) **Stavreva-Pancheva**, Ralitsa. *Guidelines for improving the design of the housing environment for adults* [online]. – In: Scientific journal „Society and health“: [NACID ID № 3977]. Regional library „Lyuben Karavelov“ – Ruse, Kaneff University Hospital – Ruse, issue 3, 2021, pp. 205 – 212. [Viewed 21.03.2022]. [eISSN 2683 – 0892]. Available from: https://www.umbal.ruse.bg/images/oio/3-1_scientific-journal-society-and-health.pdf

(4) **Stavreva-Pancheva**, Ralitsa. *Invisible technologies that maximise the space*. – In: DMT magazine: Design. Materials. Technology: furniture and woodworking industry: [NACID ID № 3455], Sofia, Publishing House „Bismar“ Ltd., issue 4, 2021, pp. 42 – 46. [ISSN 1311 – 3380]

(5) **Stavreva-Pancheva**, Ralitsa. *Intelligent materials and technologies: the potential of intelligent glass*. – In: DMT magazine: Design. Materials. Technology: furniture and woodworking industry: [NACID ID № 3455], Sofia, Publishing House „Bismar“ Ltd., issue 3, 2021, pp. 38 – 41. [ISSN 1311 – 3380]

(6) **Stavreva-Pancheva**, Ralitsa. *Historical overview of transformable and multi-functional furniture*. – In: DMT magazine: Design. Materials. Technology: furniture and woodworking industry: [NACID ID № 3455], Sofia, Publishing House „Bismar“ Ltd., issue 2, 2021, pp. 52 – 56. [ISSN 1311 – 3380]

(7) **Stavreva-Pancheva**, Ralitsa. *Innovation, robotics and sustainable interior design*. – In: DMT magazine: Design. Materials. Technology: furniture and woodworking industry: [NACID ID № 3455], Sofia, Publishing House „Bismar“ Ltd., issue 1, 2021, pp. 42 – 45. [ISSN 1311 – 3380]

Scientific reports

(1) **Stavreva-Pancheva**, Ralitsa. *Modular construction for high-rise buildings: prospects for sustainable development*. 14-th national scientific conference with international participation „Ecology and health“. Plovdiv, 2021, 13 – 14 May. – In: Proceedings, pp. 156 – 162. [ISSN 2367 – 9530]

(2) **Stavreva-Pancheva**, Ralitsa. *Minimalist housing units. Eco and smart trends*. Tenth scientific and technical conference „Innovations in forest industry and engineering design – INNO 2020“, Sofia, 2020, 1 – 3 October. – In: Proceedings, pp. 15 – 25. [ISBN: 978 – 619 – 7554 – 32 – 8]

14. Evaluation of the dissertation work publications: number, nature of the publications in which they are published. Reflections in science – use and citation by other authors

On the topic of the dissertation work the doctoral student has **1 publication** in a scientific edition, referenced and indexed in world-famous databases with scientific information, **7 publications** in scientific editions with scientific review and **2 scientific conference papers**.

The analysis of the publications shows that all articles have been published in authoritative editions with scientific review.

It is worth noting that all publications including the reports are developed independently. They reflect parts of the scientific research.

List of quotations by other authors of the publications of Eng. Ralitsa Stavreva-Pancheva is not presented.

15. Abstract

The presented Abstract reflects objectively the structure and content of the dissertation work.

It is composed according to the requirements and reflects the main parts of the dissertation, which gives the opportunity to outline the achieved analytical, scientific-

theoretical and scientific and applied contributions, which I do accept.

CONCLUSION

Based on the learned and applied by the doctoral student different research methods, correctly derived assessments and conclusions, the summaries and conclusions drawn, I consider that the presented dissertation work meets the requirements of the Act on Development of the Academic Staff in the Republic of Bulgaria and the Rules of the University of Forestry for its application which gives me reason to evaluate it **POSITIVELY**.

I allow myself to suggest to the honoured Scientific Jury also to vote positively and to award to **eng. Ralitsa Georgieva Stavreva-Pancheva**, the educational and scientific degree „**Doctor**“ in the scientific specialty „**Ergonomics and Industrial Design**“.

REVIEWER:

Corresponding Member of the BAS. Prof. DSc. Arch. Atanas Dimitrov Kovachev

Sofia, 18-th May 2022