

## **REVIEW**

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### **CONCERNING:**

**The dissertation of architect VESELINA MIREVA on the subject: "PAPER IN ARCHITECTURE. TENDENCIES AND INNOVATIONS" for awarding the Doctoral Degree in Professional Studies 5.7 Architecture, Construction and Geodesy, Academic Specialty "Theory and History of Architecture"**

**The review is presented in my capacity as:**

- Member of the Academic Jury, appointed by Order No. 590-RD dated 25.10.2019 of the Director of the Institute of Art Studies, BAS on the grounds of Art. 30 (2) and (3) and Art. 31 (1) and (2) of the Law on the Development of the Academic Staff in the Republic of Bulgaria (ZRARB), Art. 6 (5) of the Rules on the Terms and Conditions for Acquisition of Academic Degrees and Occupation of Academic Positions at the BAS and Decision of the Scientific Council of the Institute of Art Studies, Minutes No. 9, item 7 / 25.10.2019.
- Reviewer of the competition with the decision of the Academic Jury from its first meeting, held on 31.10.2019.

### **SHORT BIOGRAPHICAL DATA**

Veselina Ljubomirova Mireva was born on June 26<sup>th</sup> 1990 in Sofia. She started her architectural education in 2009, majoring in Architecture at UACG. She received her Master's Degree in Architecture from the UACG in Architecture in 2015. Her diploma project was "Housing Modules for Disasters". The project has been published in various editions and has been featured in a number of competitions.

- Mireva, V. Housing Modules for Disasters, the journal "The City", 2, 2016, c. 227-231, <https://issuu.com/tcmgbg/docs/br02>
- Mireva, V. Earned a diploma and a cash prize of competition "The City Academy Awards", 2015

- • Mireva, V. Second place in the competition "Electronic Exhibition of Diploma Projects" 2015, Regional College Sofia District, <https://kab-so.com/archives/8974>
- Mireva, V. First place in the "International Architecture Thesis Awards" 2014, <https://www.re-thinkingthefuture.com/iata2015-residential/residentioa-modules-for-disastrous-situations-veselina-mireva/>

Arch. Veselina Mireva was enrolled as a doctoral student at the Institute of Art Studies, BAS on 01.01.2016 and dismissed with the right of defense on 01.01.2019. The subject of the dissertation was "The Paper in Architecture. Trends and Innovations". She has participated in international conferences in Bulgaria and abroad.

The first architectural bureau in which she worked was Interarch (architect Stefka Ivanova). At the end of 2015, she became part of the team of Miodesign (architect Maria Davcheva and architect Orlin Davchev). She participated in the development of the project for the Aqua Paradise Resort hotel complex in Nessebar. In 2019 the studio (architect M. Davcheva, architect O. Davchev, architect P. Georgieva, architect V. Mireva and architect M. Stankovska) was awarded the National Award of UAB "Architecton" for the realization of the same hotel complex. Currently architect Mireva is part of the architectural studio Miodesign.

## **SCOPE AND STRUCTURE OF THE DISSERTATION**

The dissertation contains 138 p. text. It is structured as follows: Introduction, 3 Chapters and Conclusion. The cited literature includes 19 Cyrillic titles, 16 Latin titles, 33 online sources. The additional literature includes 46 titles. Image Appendix is also included.

## **GENERAL CHARACTERISTIC OF THE DISSERTATION**

**Relevance of the study.** The need to study architectural examples of the use of paper as a building material and to systematize the concepts influenced by it that go beyond the scope of the experiment and enter into practice, as well as to analyze the application of the material "**paper**" itself in individual construction decisions define the relevance and importance of the study. It is also proved valid by the fact that in recent years researchers from different countries and schools have been conducting research on the application of paper. Works by Jerzy Latka, Mig Ikaut, Ozlem Aian and others confirm the tendency to apply materials such as paper.

**Object of research** are the different architectural forms that use paper.

**Subject of the research** is the influence of paper on modern architectural tendencies; the moments when it is an innovation although paper itself is a well-known material.

**Aim of the study** is to define the development tendencies of the material paper and its modifications in the present times and in the future of architecture.

**The confines of the study** cover the period from the middle of the twentieth century with the first manifestations of the use of paper in architecture in an unconventional way up to the present. References are made to traditions and established properties of paper that cannot be timed.

**The tasks of the study are:**

- to systematize the properties of paper that make it an appropriate material for architecture;
- to distinguish between different forms of application and appearance of the paper beyond its well-known role;
- to follow the typology of architectural forms for which paper is appropriate;
- to clarify trends and innovations in the use of paper as a building material, as well as their relationship with traditional practices;
- to evaluate the possibilities of paper application in architecture in Bulgaria.

**The methodology for the development of the dissertation** uses the tools of analysis and synthesis - the general and specific methods of scientific knowledge in the field of culture, and in particular in architecture.

**The study contains:**

**Introduction** where the relevance, object, subject, aims, borders, methodology, tasks and expected results are defined.

**CHAPTER ONE "Selected Information about Paper"** includes **three parts:**

- The **first part** deals with the paper as historical material and its roles.
- The **second part** deals with the paper in architectural aspect and the directions of interaction between paper and architecture.
- The **third part** presents one of the key contemporary authors working with paper - the designer Shigeru Ban.

**CHAPTER TWO "Temporary Architecture and Paper. Disasters and Festivals. Tendencies"** includes **seven parts:**

- **Part One** looks at the concepts and characteristics of disaster architecture.
- In the **second part**, the types of temporary dwellings are systematized as forming and predominant part of this type of architecture.
- The **third part** focuses on temporary architecture and paper to help the needy.
- The **fourth part** focuses on the creative use of paper by Shigeru Ban in the field of disaster architecture.
- **Part Five** examines the temporary festival architecture with its concepts, specifics and characteristics.

- In the **sixth part**, a typology of festival architecture is implemented with the use of paper projects.
- The **Seventh part** traces the decisions, the projects of Shigeru Ban in the field of temporary festival architecture.

### **CHAPTER THREE "Paper: Contemporary Context and Interpretation of Traditions" includes three parts.**

- The **first part** examines the impact of traditions on Shigeru Ban's creativity and their interpretation in contemporary architectural contexts.
- The **second part** examines paper in architecture and its independent or relatively independent constructive and formative role in architectural objects.
- The **third part** focuses on paper and its interaction with other materials in the construction of structures and architectural form.

**Each of the three chapters concludes with a summary and conclusions.**

**A final part of the dissertation**, which summarizes the obtained results, scientific novelty and importance of work.

### **SUMMARY:**

The results of the study are in the field of contemporary architecture and its theory. The paper's application to architecture is evaluated in the form of a basic building block, both in terms of architectural and aesthetic vision, as well as in the direction of sustainable development and environmental thought, and as a form of education towards less materiality and a more conscious attitude towards the environment.

### **CONTRIBUTIONS:**

**The contributions of the dissertation are as follows:**

- 1.** Introduction of paper and paper architecture into the research space at national level.
- 2.** Discovering and summarizing the links between paper and traditional architecture - the importance and practical characteristics of paper. Highlighting the links between paper, tradition and architecture that lead to innovative "Paper Architecture".
- 3.** Systematization of paper application possibilities in architectural form.
- 4.** Classification of architectural joints and details using paper.
- 5.** Formulating the trend of temporary paper-based architecture. Display paper applications in temporary architecture.

## **SUMMARY:**

### **Applicant's scientific contributions may relate to:**

- Enrichment of existing knowledge by obtaining confirmatory facts, as well as obtaining and proving with new means existing facts and problems;
- application of scientific achievements by incorporating results into actual study practice - in lectures and exercises.

## **CONCLUSIONS AND RESULTS**

Summarized conclusions from the presentation have been systematized according to the **tasks** set at the beginning of the study:

### **1. The properties of paper that make it a suitable possible material for architecture include:**

- its presence as a globally available material - production, waste and recycling;
- the ability to design new items to include recycled paper (paper waste can thus be absorbed);
- the paper elements themselves could be recycled when depreciated or found to be redundant.

### **2. The various forms by which paper is "interpolated" into construction and architecture:**

- in the form of blocks for wall filling - solid blocks of paper concrete or boxes (repeats the principles of brick as a building unit);
- in the form of tubes in a vertical and horizontal position;
- monolithic type (pulp, paper concrete);
- by repeatedly superimposing layers (on panels with cellular fill literally; in 3D printing);
- through volumes formed by the intersection and folding of the panels (the folding may be apparent, but the breakage system in the shape will give the structure stability);
- as part of a composite wall solution in combination with other materials (in the form of panels and cellular fill).

**3. The architectural forms and structures for which paper is suitable material vary in scale and character.** The following cases can be distinguished: at the level of detail; at the construction level - for different structures; at the level of architectural form.

#### **4. The use of paper as a building material is conditioned by several conceptual directions:**

- illustrating the understanding of respect for materials, their minimal waste and optimal use;
- meeting the rapidly changing needs of people and the need for temporary architecture;
- rethinking well-known traditions;
- introduction of the paper into the shaping of architectural objects;
- Demand for new expressive materials in construction and architecture.

#### **5. The uses of paper as a building material are at the heart of its innovative applications:**

- possibility of implementation of a specific openwork construction - providing passage of additional light into the interior;
- generally making the structure of the building lighter;
- achieving a contemporary interpretation of traditions (of architecture and construction; transferring the details of the scale of decorative art into the scale of buildings);
- a more economical alternative to durable structures for shorter-life applications;
- Various solutions for details with a seemingly weak material such as paper.

#### **6. Study and evaluation of the forms of expression of the Paper Architecture in Bulgaria.**

### **PUBLICATIONS ON THE TOPIC OF THE DISSERTATION WORK**

For the period 2016-2019, **7 articles** were published. These are:

- 1. Мирева, В.** "Концепциите за временна и постоянна". С., Архитектура, бр. 2, 2019
- 2. Мирева, В.** "Архитектурни детайли и съединения, свързани с хартията: традиция и новаторство", Изкуствоведски четения, 2018, ИИИ, БАН, 2019
- 3. Мирева, В.** "Хартията в архитектурата – проекти и концепции". С., Архитектура, бр. 2, 2018
- 4. Mireva, V.** Shigeru Ban's architecture in the context of traditional craft techniques. A: Arquitectonics. "International Conference Arquitectonics Network: Mind, Land and

Society, Barcelona, 31 May, 1-2 June 2017: Final papers". Barcelona: GIRAS. Universitat Politècnica de Catalunya, 2017, URI: <http://hdl.handle.net/2117/121359>

**5. Мирева, В.** Временната архитектура на Шигеру Бан: Другата архитектура. От сетивното към визуалното – в търсене на идентичността. Трета международна научна конференция, Велико Търново, 1-2 декември 2016.

**6. Мирева, В., М. Давчева.** Преплитане на традиции и иновации в творчеството на Шигеру Бан. Том III. Архитектура. Градоустройство и урбанизъм. Изкуство и опазване на архитектурното наследство. Иновации в образованието. XVI Международна научна конференция ВСУ'2016.

**7. Мирева, В., М. Давчева.** Развитие на концепцията „жилище“ през XX век. Том III. Архитектура. Градоустройство и урбанизъм. Изкуство и опазване на архитектурното наследство. Иновации в образованието. XVI Международна научна конференция ВСУ'2016

## SUMMARY:

Of the 7 publications, **5 are personal and 2 are co-authored**, with the PhD student being the first author in both joint publications. **2 articles** were published in the journal Architecture, **1 article** in the journal Art Readings of the Institute of Art Studies at the Bulgarian Academy of Sciences. **4 articles** have been published in Proceedings of International Conferences - **1** abroad and **3** in Bulgaria. These 4 articles were first presented as conference reports and then published in Proceedings. **6 of the articles** are in Bulgarian and **1** is in English. **All publications reflect parts of the dissertation and characterize the author as a researcher.**

## ABSTRACT

It has been prepared in accordance with the requirements and reflects the main content of the dissertation, which gives an opportunity to outline the contributions made.

## RECOMMENDATIONS

**1.** I would recommend the dissertation 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 professionals from different specialties working on the topic.

**2.** Despite the quantity and quality, the number of publications for Doctoral degree I have a recommendation to Arch. VESELINA MIREVA to increase her publishing

activity by publishing **scientific studies and articles** in our country and - especially abroad in reputable journals (referenced in world-famous databases and with Impact Factor), which will allow her to cite her research, conclusions and proposals, and will establish her as a scientist with positions in the field in which she works.

## QUESTIONS:

I have the following **questions** for the PhD student:

1. In what directions do you see the development of your work by developing similar problems, “lending a hand” to new research by you or other authors and specialists, outlining topics with various aspects in different scientific fields.
2. Where and how do you see the application of the paper among future architectural materials (does paper have a future in a new, uncharacteristic form in current architecture, or will it remain in the sphere of utopias with a limited number of modern realizations)?

## CONCLUSION

The paper explores the characteristics of paper as a material, with its history, figurative semantics and pragmatics, and reviews and systematizes contemporary architectural concepts in relation to the use of paper.

A classification of the different forms of application of paper is made with respect to the relative scale and variants of its inclusion in construction.

Opportunities for future development in the sphere are envisaged.

The method of comparative analysis in terms of requirements and concepts as well as functional purpose, structures and details is applied.

The qualification of **arch. VESELINA MIREVA** and her previous work allow me to conclude that **a dissertation of good quality and useful for theory and practice** has been developed, and the doctoral student shows with this work that she can analyze, synthesize and predict problems, formulating conclusions and suggestions in the field.

I accept the **dissertation of Arch. VESELINA MIREVA** as completed. In its present form, it represents a research on a contemporary problem for Bulgarian science and practice at the present stage, developed independently by the doctoral student.

By its structure and formulated contributions, the dissertation **covers the criteria for obtaining the Doctorate degree**, which is currently the third level of education in our country.

**The requirements of the Act for the Development of the Academic Staff in the Republic of Bulgaria** (promulgated SG, issue 38 of 21.05.2010, with subsequent amendments and supplements), the Regulations to it and the normative documents of the Institute of Art Studies, BAS in this field have been complied with.

**As member of the Academic Jury and a reviewer of the dissertation, I give my positive vote "FOR" the awarding of the educational and academic degree "DOCTOR" to Arch. VESELINA MIREVA in Professional Studies 5.7 Architecture, Construction and Geodesy, Academic Specialty "Theory and History of Architecture"**

**Reviewer:**

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**(Associate Member of the Bulgarian Academy of Sciences, Prof. DSc Atanas Kovachev, Foreign Member of the Russian Academy of Architecture and Civil Engineering)**

**Sofia, December 13, 2019**