

**Written Review by the Official Reviewer**  
on the dissertation of Laura Mukhanovna Aukhadiyeva  
titled: **“Trends in the Development of Modern Regional  
Architecture of Kazakhstan”**,  
submitted in fulfillment of the requirements for the degree of  
Doctor of Philosophy (PhD)  
under the educational program 8D07311- “Architecture”

No.	Criteria	Criteria Compliance (underline one of the response options)	Justification of the Official Reviewer’s Position (with highlighted comments)
1.	The dissertation topic (as of the date of its approval) aligns with the directions of scientific development and/or government programs.	<p>1.1 Compliance with priority areas of scientific development or Government programmes:</p> <p>1) The dissertation was completed as part of a project or targeted programme funded by the state budget (please specify the name and number of the project or programme);</p> <p>2) The dissertation was completed within the framework of another government programme (please specify the name of the programme);</p> <p>3) <u>The dissertation aligns with a priority area of scientific development approved by the Higher Scientific and Technical Commission under the Government of the Republic of Kazakhstan (please specify the area).</u></p>	<p>The dissertation topic aligns with the priority areas of scientific development and national programs. The content of the research is aimed at implementing national priorities and government programs, including the "State Program for Regional Development until 2020," which was developed within the framework of the “National Development Plan of the Republic of Kazakhstan until 2025” (approved by the Decree of the President of the Republic of Kazakhstan on February 15, 2018, No. 636), and the “Concept for Transition of the Republic of Kazakhstan to Sustainable Development for 2007-2024” (approved by the Decree of the President of the Republic of Kazakhstan on November 15, 2006, No. 216). Additionally, it addresses the objectives of relevant international programs, such as the UN's “Sustainable Development Goals” and the International Union of Architects’ “Copenhagen Lessons”.</p>
2.	Scientific importance	<p>The work <u>makes/does not make</u> a significant contribution to the field, and its importance is <u>well</u> articulated/not well articulated.</p>	<p>The work makes a significant contribution to the field of science, with its importance clearly articulated. The subject matter under investigation is at the forefront of contemporary scientific discourse, highlighting the significance of the research conducted. Of particular value is the thorough theoretical analysis of the issues addressed, as well as the</p>



			results achieved, which are expressed in the development of trends in the architecture of Kazakhstan in the 21st century, presented through the author's graphical-analytical tables.
3.	Principle of autonomy	Level of independence: 1) <u>High</u> ; 2) Medium; 3) Low; 4) No independence.	The level of independence is assessed as high. The doctoral candidate independently conducted a substantial amount of research work, including organising a survey, the results of which are presented in the form of tables and diagrams. The conclusions demonstrate a comprehensive and in-depth analysis, indicating the author's high competence in working with empirical data.
4.	The principle of internal unity	4.1 Justification of the relevance of the dissertation: 1) <u>well-justified</u> ; 2) partially justified; 3) not justified.	4.1 The relevance of the dissertation research is fully substantiated. A thorough and profound analysis of the materials studied within the subject area has been presented, encompassing both international and domestic scientific and practical experience. This has allowed for the identification of problematic aspects and a focused attention on addressing them.
		4.2 The content of the dissertation reflects the dissertation topic: 1) <u>reflects</u> ; 2) partially reflects; 3) does not reflect.	4.2 The content of the dissertation fully reflects the declared topic, consisting of four sections, including conclusions, a summary, and appendices. The introduction outlines the relevance of the research, the degree of its study, methods, testing, and the scientific framework. The first section analyses the evolution of architectural movements of the 20th century, emphasising key global trends. The second section examines the impact of socio-economic and political changes on the architecture of Kazakhstan during the Soviet period. The third section addresses the challenges of preserving regional identity in the context of globalisation. The fourth section identifies local challenges and global trends shaping the architecture of Kazakhstan in the 21st century and defines promising directions for its development. All sections are illustrated with the author's graphic-analytical diagrams, which reinforce the scientific argumentation of the work.
		4.3. The aim and objectives align with the dissertation topic: 1) <u>fully align</u> ;	4.3 The aim and objectives of the dissertation are precisely formulated and fully aligned with the research topic. The study aims to provide a theoretical justification and identify critical trends in the development of



		<p>2) partially align; 3) do not align.</p>	<p>contemporary architecture in Kazakhstan in response to regional and global challenges, focusing on current trends and priority areas. The research objectives and theoretical propositions are logically and consistently structured, ensuring their alignment with the stated aim.</p>
		<p>4.4 All sections and statements of the dissertation are logically interconnected: 1) <u>fully interconnected</u>; 2) partially interconnected; 3) no interconnection.</p>	<p>4.4 The sections and provisions of the dissertation are logically interconnected, and the structure of the work strictly adheres to the research's logical framework. The progression from historical and theoretical foundations, through the analysis of contemporary conditions, to the development of principles and identification of trends in the evolution of Kazakhstan's architecture in the 21st century demonstrates a high degree of coherence and scientific rigour in work.</p>
		<p>4.5 Proposed by the author, the new solutions (principles, methods) are substantiated and evaluated in comparison with existing solutions: 1) <u>Critical analysis is present</u>; 2) Partial analysis is conducted; 3) The analysis consists not of the author's own opinions, but of quotations from other authors; 4) Analysis is absent.</p>	<p>4.5 The new solutions proposed by the author, including principles and methods, are well-argued and carefully evaluated compared to known analogues, confirming their scientific and practical significance. Critical Analysis is Present. The author provides a critical examination of the theories and concepts under consideration, offering a comparative analysis. One of the principles formulated in the work is the principle of a critical approach in architecture, which aims to find a balance between historical traditions and modern innovations within the context of globalization and regional identity. This approach emphasizes the need to integrate cultural traditions and local characteristics into contemporary architectural practices, thereby fostering the creation of sustainable, culturally significant structures that reinforce regional identity.</p>
5.	The principle of scientific novelty	<p>5.1 Are the research findings and propositions novel? 1) <u>Entirely novel</u>; 2) Partially novel (25-75% are new); 3) Not novel (less than 25% are new).</p>	<p>5.1 Scientific Results and Propositions Are: 1) Entirely novel. The study is the first to comprehensively formulate the vectors of architectural development in Kazakhstan in the 21st century across the following areas: sustainability, architectural digitalization, adaptive reuse of buildings, participatory design, and regional identity. Sources of transformation in Kazakhstani architecture from Soviet modernism to global trends are presented. The role of architecture in shaping regional identity through the visualization of symbolic images in contemporary architectural forms is substantiated. Current trends for</p>



			the future trajectory of architecture have been identified within the context of international and local influences, establishing a foundation for sustainable development.
		5.2 Are the dissertation's conclusions new? 1) <u>Completely new</u> ; 2) Partially new (25-75% are new); 3) Not new (less than 25% are new).	5.2 The conclusions of the dissertation are as follows: 1) Entirely novel. The author has successfully demonstrated the application of an interdisciplinary approach, which has enabled not only the identification of historical and cultural aspects but also a deep analysis of the socio-economic factors that have influenced the formation of the country's architectural identity. This comprehensive approach convincingly affirms that the contemporary state of architecture in Kazakhstan is a natural continuation and reflection of the historical processes of the 20th century, logically extending into the architecture of independent Kazakhstan.
		5.3 Technical, technological, economic, or management solutions are new and substantiated: 1) <u>entirely new</u> ; 2) partially new (25-75% are new); 3) not new (less than 25% are new)	5.3 Technical, technological, economic, or managerial solutions are entirely new and well-justified: 1) Entirely new. The author has conducted substantial scientific research, grounded in a thorough and comprehensive analysis of previous scholars' works, which enables the formulation of a new predictive trajectory for the development of architecture in Kazakhstan.
6.	Justification of the main conclusions	All the main conclusions are either based on scientifically significant evidence or are sufficiently <u>well-founded</u> (particularly in the context of qualitative research and disciplines related to the arts and humanities).	All the primary conclusions of the dissertation research are grounded in substantial scientific evidence. The findings are based on thoroughly verified and reliable data, supported by references to authoritative scientific sources, photographic documentation, and graphical diagrams. The author has also incorporated the results of their own sociological and design research, further strengthening the scientific validity of the work. The development of principles and trends for the evolution of regional architecture in Kazakhstan under contemporary conditions represents a significant contribution to architectural science and holds practical value for architectural practice.
7.	Key Points for Defence	It is necessary to address the following questions for each proposition individually:	7.1 Is the proposition proven? 1) Proven.



		<p>7.1 Has the proposition been proven?</p> <ol style="list-style-type: none"> <li>1) <u>proven</u>;</li> <li>2) likely proven;</li> <li>3) likely not proven;</li> <li>4) not proven;</li> <li>5) in its current formulation, it is impossible to verify the proof of the proposition.</li> </ol>	<p>In the presented study, six scientific propositions were formulated, each supported by specific analytical schemas. These schemas, thoroughly presented and described in the appendix, convincingly demonstrate the principal findings of the work. Therefore, all scientific propositions can be considered fully proven, reflecting the methodological accuracy and scientific validity of the research conducted.</p>
		<p>7.2 Is it trivial?</p> <ol style="list-style-type: none"> <li>1) Yes;</li> <li>2) <u>No</u>;</li> </ol> <p>In its current formulation, it is impossible to assess the triviality of the statement.</p>	<p>7.2 Is it trivial?</p> <ol style="list-style-type: none"> <li>2) No</li> </ol> <p>The scientific propositions submitted for defence are not trivial.</p>
		<p>7.3 Is it new?</p> <ol style="list-style-type: none"> <li>1) <u>Yes</u>;</li> <li>2) No;</li> <li>3) In its current formulation, verifying the novelty of the position is impossible.</li> </ol>	<p>7.3 Is it new?</p> <ol style="list-style-type: none"> <li>1) Yes;</li> </ol> <p>The author's approaches are new in several respects: the personalisation of the development process of the architectural and urban planning sphere of Kazakhstan in the 20th century within the context of socio-economic and cultural changes; the analysis of the transformation of Kazakhstan's architecture in the 21st century; the specification of internal local and external global factors influencing the development of contemporary architecture; the justification of architecture's role as a fundamental construct in the formation of regional identity; the formulation of principles for a critical approach in architecture; and the development of trends in the evolution of regional architecture in Kazakhstan in the 21st century.</p>
		<p>7.4 Scope of Application:</p> <ol style="list-style-type: none"> <li>1) Narrow;</li> <li>2) Moderate;</li> <li>3) <u>Broad</u>;</li> <li>4) In its current formulation, the level of applicability cannot be determined.</li> </ol>	<p>7.4 Level of Application:</p> <ol style="list-style-type: none"> <li>3) Broad;</li> </ol> <p>The dissertation research is distinguished by its interdisciplinary nature, making its results applicable across various fields, including architecture, construction, heritage conservation, building reconstruction, and restoration. This broadens the audience of interested parties, encompassing professionals from multiple scientific and practical domains.</p>

		<p>7.5 Is it proven in the article?</p> <p>1) <u>Yes</u>;</p> <p>2) No;</p> <p>3) In the current formulation, proof of the article's claim is impossible.</p>	<p>7.5 Has it been demonstrated in the article?</p> <p>1) Yes.</p> <p>In all 12 of the author's publications, the research materials are reflected, including:</p> <p>1. Identification of the architecture in XXI century "Generation of Legacy Reborn from Innovations" // IOP Conference Series Materials Science and Engineering. IPICSE 2020. – Vol.1030 – P.1-11. DOI:10.1088/1757-899X/1030/1/012056.</p> <p>2. Architectural images and symbols of the regional identity of modern architecture in Kazakhstan //Innovaciencia, 2022 Vol. 10, Issue 1, P. 1-17 International research and practice conference "Problems of formation of a comfortable object-spatial environment of cities. Issues of architecture, construction, design" September 19-20, 2022 Opatija, Croatia. E-ISSN: 2346-075X. DOI: 10.15649/2346075X.2960</p> <p>3. Medieval ornamentation of the mausoleum of Aisha bibi is the identity key of the regional architecture of Kazakhstan in the 21st century // Vestnik KazGASA. - Almaty, 2021. – №2 (80). – P.39-47.</p> <p>4. The role of regional identity in shaping the architecture of the 21st century // International Scientific Journal of Urban Planning and Sustainable Development. No. 26 - Baku, 2021. – P.1-9</p>
8	Principle of Authenticity: Accuracy of Sources and Provided Information	<p>8.1 Is the choice of methodology justified or sufficiently described?</p> <p>1) <u>Yes</u>;</p> <p>2) No.</p>	<p>8.1 Selection of Methodology - justified and sufficiently detailed:</p> <p>1) Yes;</p> <p>The selection of the research methodology is well-founded and meticulously developed. The use of a comprehensive approach, incorporating the analysis of scientific works, project-graphic materials on global architectural trends and the regional characteristics of Kazakhstan, as well as methods such as theoretical-empirical analysis, comparative research, iconographic analysis, logical modelling, on-site surveys, and questionnaires, has ensured a structured and profound understanding of the critical stages in the formation of regional architecture. The reliability of sources and the information provided is beyond question.</p>



		<p>8.2 The results of the dissertation work were obtained using contemporary scientific research methods and data processing and interpretation techniques involving computer technologies:</p> <p>1) <u>Yes</u>; 2) No.</p>	<p>8.2 The findings of the dissertation were obtained using contemporary scientific research methods and data processing and interpretation techniques, including the application of computer technologies:</p> <p>1) Yes; The results of the dissertation were achieved through the application of modern scientific methods, including graphical-analytical approaches, computer technologies, and advanced data processing and interpretation techniques. The author employed digital tools to develop original diagrams, charts, and tables, effectively illustrating the critical points of the research. The significance of digitalisation in design is substantiated in the fourth section of the work, covering aspects such as BIM, "smart homes" and "smart cities," artificial intelligence, as well as 3D modelling and 3D printing. This underscores the high relevance and innovation of the research, aligning with contemporary architectural trends.</p>
		<p>8.3 Theoretical conclusions, models, identified relationships, and patterns are substantiated and confirmed by experimental research (for educational sciences, results are substantiated based on pedagogical experiments):</p> <p>1) <u>Yes</u>; 2) No.</p>	<p>8.3 Theoretical conclusions, models, identified correlations, and patterns have been substantiated and confirmed through experimental research:</p> <p>1) Yes; The theoretical conclusions, models, identified correlations, and patterns have been validated through field surveys of selected architectural objects. Additionally, a sociological survey identified vital factors shaping the identity of Almaty, which have been reflected in the developed graph-analytical schemes and diagrams. The dissertation's findings were also tested during the creative competition for reconstructing the residential complex "Three Bogatyrs" in Almaty.</p>
		<p>8.4 <u>Important claims are supported</u>/partially supported/not supported by current and credible scientific literature references.</p>	<p>References to relevant and reliable academic literature substantiate the key assertions in the study. The author has meticulously selected sources, incorporating both international and domestic research.</p>
		<p>8.5 The sources cited are <u>sufficient</u>/insufficient for the literature review.</p>	<p>The sources used in the literature review are sufficient. The comprehensive list (531 entries) covers all key aspects of the topic, aligning with the scope and scale of the presented research.</p>



9	The principle of practical value	<p>9.1 The dissertation has theoretical significance:</p> <p>1) <u>Yes</u>;</p> <p>2) No</p>	<p>9.1 The thesis holds theoretical significance:</p> <p>1) Yes;</p> <p>The theoretical value of the work lies in deepening the understanding of the importance of continuity in architecture and identifying directions for its development in the face of global challenges. The results open new perspectives for further research and their integration into educational programs.</p>
		<p>9.2 The dissertation has practical significance, and there is a high likelihood of applying the results in practice:</p> <p>1) <u>Yes</u>;</p> <p>2) No.</p>	<p>9.2 The dissertation holds practical significance, with a high likelihood of the results being applied in practice:</p> <p>1) Yes;</p> <p>The dissertation possesses substantial practical significance, with a strong potential for its results to be effectively applied in practice. The research can be successfully utilised in designing buildings and structures within a regional context and in projects focused on preserving and restoring architectural monuments. The study's outcomes contribute to conserving cultural heritage and its adaptation to contemporary societal needs, thereby enhancing these objects' functional appeal and economic value.</p>
		<p>9.3 The practical recommendations are:</p> <p>1) <u>Entirely new</u>;</p> <p>2) Partially new (25 - 75% of the recommendations are new);</p> <p>3) Not new (less than 25% of the recommendations are new).</p>	<p>9.3 Practical Recommendations of the Dissertation Research are:</p> <p>1) Entirely novel.</p> <p>In the context of intense urbanisation and escalating environmental challenges, the development and implementation of principles such as environmental safety, scientific and technological modernisation, the revitalisation of architectural objects, the socialisation of architecture, and a critical approach are timely and essential.</p>
10	Quality of writing and presentation	<p>Quality of academic writing:</p> <p>1) <u>High</u>;</p> <p>2) Moderate;</p> <p>3) Below average;</p> <p>4) Low.</p>	<p>The quality of academic writing is high. The dissertation is written and formatted excellently, demonstrating precise and accurate use of professional terminology. The text is characterised by clarity and logical structure, facilitating easy comprehension and a deep understanding of the scientific ideas presented.</p>
11	Comments on the Dissertation		<p>In our view, greater attention should be given to a more profound exploration of the artistic characteristics of regional architecture, which are vital elements in shaping the structures' aesthetic and cultural</p>



			identity. A thorough analysis will enhance the work's scholarly significance.
12	Scientific Quality of the Doctoral Candidate's Articles on the Research Topic (in the case of defending the thesis in the form of a series of articles, official reviewers comment on the scientific quality of each article by the doctoral candidate on the research topic)		The results of the dissertation research, published in 12 scientific papers, attest to the high scholarly quality of the work. The author's articles fully elucidate the essential findings and stages of the conducted research, reflecting the depth and comprehensiveness of the scientific approach.
13	Decision of the Official Reviewer (following Clause 28 of this Standard Regulation)		To petition the Committee to award the Doctor of Philosophy (PhD) degree in the educational program 8D07311-Architecture to doctoral candidate Laura Mukhanovna Aukhadiyeva.

Reviewer

Architectural Candidate, Associate  
Professor Satbayev University



G.D. Maulenova

