

## **Editorial**

*Mehmet Topçu (Editor)*

The Journal of Design for Resilience in Architecture & Planning (DRArch) continues its trajectory of growth while steadfastly upholding its commitment to quality and high standards. We are proud to present Volume 6, Issue 2, which features articles of exceptional scientific merit. Staying true to our mission of fostering innovative, interdisciplinary, and resilient approaches to design and urban planning, this issue brings together a collection of scholarly works that explore the dynamic intersections of architecture, resilience, urban transformation, and cultural continuity. This issue brings together contributions from researchers in Singapore, India, Türkiye, and Nigeria, covering a spectrum from historically grounded inquiries to contemporary challenges, including artificial intelligence and the climate crisis.

This volume begins with a study that foregrounds climate-responsive housing, situating thermal comfort within the larger debate on resilience and future-proofing the built environment. “Future-Proofing Next-G Homes: Enhancing Thermal Comfort and Building Energy Performance through Landscape Integration” by Mark Alegbe, Laurence Chukwuemeka, John Lekwauwa Kalu, and Hammed Nasiru investigates the impact of micro-landscape interventions—such as trees, lawns, and water features—on indoor thermal comfort in tropical buildings using dynamic thermal modelling. Findings show that while vegetation can reduce discomfort hours, mechanical cooling remains essential under future climate extremes, highlighting the need for integrated strategies to ensure thermal resilience in Next-G housing. While the first article addresses resilience at the scale of housing performance, the following contribution shifts attention to construction management processes, examining the transformative role of artificial intelligence. In “Artificial Intelligence in Construction Project Management: Trends, Challenges and Future Directions” Sezer Savaş focuses on the role of AI in key functions of construction project management, including time management, cost estimation, quality assurance, occupational health and safety, risk mitigation, resource optimization, and design management, through a narrative literature review. Extending the theme of innovation, the third paper explores design methodologies, focusing on how Interaction Design can enhance Design Thinking in group housing projects. In “Optimizing the Design Thinking Process for Group Housing through Interaction Design Methods” Tadiboina Samantha Kumar and Ramesh Srikonda propose a hybrid approach that combines empathy mapping, interactive prototyping, and real-time feedback systems to optimize DT phases—empathize, ideate, prototype, and test.

From contemporary housing design, the issue turns to cultural heritage, with an article that examines how memory and perception intertwine in the experience of historic buildings. “Physical Vs Virtual: A Multi-Layered Perception Experience on Memory through Historic Buildings” by Yekta Özgüven, Asena Kumsal Şen Bayram and Nadide Ebru Özkan investigates the layered relationship between memory and perception through the case of Bostancı Primary School in Istanbul, designed by Architect Kemalettin in the early 20th century. The study highlights how architectural elements, spatial perception, and sensory engagement contribute to memory formation, while also pointing to the potential of virtual technologies in extending architectural experiences beyond physical constraints. In line with the concern for heritage, the next contribution employs a scientific lens to analyze gilded ornamentation using non-destructive testing methods. “A Non-Destructive Testing Method for the Production Technique of Gilded Ornamentation in a Traditional House: XRF Analysis Method” by Gamze Fahriye Pehlivan examines yıldızlı ornamentation from a traditional house in Sivas. Using XRF analysis, the study reveals that the gilding is an imitation made from a brass alloy, demonstrating the value of modern, non-destructive methods in conservation and restoration. While the previous article focuses on conserving heritage materials, the following study shifts the discussion to ecological infrastructures, evaluating the long-term performance of rain gardens in the tropics. “Degradation and Biodiversity of Rain Gardens in the Tropics” by Lina Altoaimi, Shruthakeerthi Karthikeyan, Akshitha Vadlakunta, Yuting Wang, and Abdul Thaqif Abdul Terawis compares two rain gardens in Singapore—one in Potong Pasir and another in Jurong Lake Gardens—to assess ecological and aesthetic degradation. Using biodiversity and visual indices alongside field observations, the research highlights maintenance and design challenges and proposes strategies to extend rain garden lifespans while supporting stormwater management and urban biodiversity. Continuing with nature-based solutions, the next article investigates temporary, small-scale urban interventions that mobilize civic engagement in transforming overlooked urban spaces. In “Mobilizing Nature-Based Solutions through Temporary Urban Interventions: A Civic Guide to Ephemeral Landscapes” Tuba Doğu and Hande Atmaca develop a civic guide through experimental prototyping in three phases—experimentation, fabrication, and dissemination—

integrating material innovation, planning theory, and public participation to advance urban resilience. Broadening the ecological focus from small-scale interventions to larger urban zones, another study examines the role of fringe belt areas in mitigating the urban heat island effect. In *“Urban Heat Island and Fringe Belt Interaction: The Role of the Urban Fringe in Heat Island Mitigation”* Gülnihal Kurt Kayalı, Büşra Gülbahar İşlek, Tuğba Akın, Tolga Ünlü, and Tülin Selvi Ünlü analyze Landsat satellite images from 1985, 2000, and 2025 via Google Earth Engine to show that preserved or minimally developed fringe belts reduce heat accumulation, whereas intensified development exacerbates UHI effects. The study highlights the potential of fringe belts as cooling buffers and calls for their integration into climate-sensitive urban planning. Beyond climate resilience, this issue also addresses the socio-spatial evolution of housing, as explored through the case of Kayseri. In *“Urban Layers and Living Spaces: The Evolution of Housing in Kayseri”* Nihan Muş Özmen and Burak Asiliskender examine housing transformation as a lens to understand broader processes of urbanization, modernization, and socio-spatial change in Turkey. Building on the theme of urban transformation, the following contribution introduces a comprehensive index to assess the vulnerability of Türkiye’s cities to climate change. In *“Assessing the Vulnerability of Cities to Climate Change: A New Index Proposal for Türkiye Cities”* Hale Öncel develops an index that evaluates multiple climate risks, including drought, sea-level rise, heavy rainfall, and extreme heat, offering municipalities and researchers a practical tool for climate-resilient planning and decision-making. From contemporary urban challenges, the issue moves back to heritage studies, presenting an analysis of wooden pillar and wooden ceiling mosques of the Seljuk and Principalities period. In *“Analysis of Wooden Pillar and Wooden Ceiling Mosques of the Seljuk and Principalities Period”* Ercan Aksoy and Özlem Sağıroğlu Demirci provide a typological and structural analysis of these mosques, documenting construction techniques and ceiling solutions—some recognized on the UNESCO World Heritage List—through site examinations, archival sources, and 3D modeling.

Turning again to present-day urban issues, another article develops an innovative, participatory paradigm for parking management. In *“A New Paradigm in Parking Management: From Quantitative Models to Stakeholder Participation”* Ecenur Sarıca Karakulak and Gökem Gülhan propose an integrated approach that combines quantitative models with expert and user opinions. Using the Trabzon-Ortahisar case and applying the Analytical Hierarchy Process (AHP), the study demonstrates that conventional methods are insufficient and advocates for participatory strategies better aligned with user behavior and local demand. The issue concludes with a contribution in the field of architectural education, offering a multidimensional analysis of teaching techniques in higher education. In *“Multidimensional Analysis of Teaching Techniques Used in Higher Education: The Case of a Landscape Architecture Department”* Ahmet Akay evaluates teaching effectiveness through student feedback, questionnaires, and course performance. Employing a pretest–posttest design and statistical analyses, the study shows significant knowledge gains across courses, though effectiveness levels vary—being highest in Computer-Aided Design and lowest in Project-I—emphasizing the importance of aligning teaching strategies with student perceptions and curriculum needs.

We thank all contributors for their dedication and hope that this issue inspires new research, collaboration, and creative initiatives. By engaging with these studies, readers are invited to enrich the debate on resilience and design and to help shape a more sustainable future for architecture and planning.

Best regards...

Following names that provided valuable contribution as referees of articles in this issue are:

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\*sorted by last name



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## **DRArch's objectives are:**

- to question how future building technologies are revolutionizing architectural design, city planning, urban design, landscape design, industrial design, interior design and education,

- to catalyze the processes that lean on interdisciplinary and collaborative design thinking, creating a resilient thinking culture,

- to improve the quality of built environment through encouraging greater sharing of academicians, analysts and specialists to share their experience and answer for issues in various areas, which distributes top-level work,

- to discover role of the designers and design disciplines -architecture, city planning, urban design, landscape design, industrial design, interior design, education and art in creating building and urban resilience,

- to retrofit the existing urban fabric to produce resilience appears and to support making and using technology within the building arts,

- to discuss academic issue about the digital life and its built-up environments, internet of space, digital in architecture, digital data in design, digital fabrication, software development in architecture, photogrammetry software, information technology in architecture, Archi-Walks, virtual design, cyber space, experiences through simulations, 3D technology in design, robotic construction, digital fabrication, parametric design and architecture, Building Information Management (BIM), extraterrestrial architecture, , artificial intelligence (AI) systems, Energy efficiency in buildings, digitization of human, the digitization of the construction, manufacturing, collaborative design, design integration, the accessibility of mobile devices and sensors, augmented reality apps, and GPS, emerging materials, new constructions techniques,

-to express new technology in architecture and planning for parametric urban design, real estate development and design, parametric smart planning (PSP), more human-centered products, sustainable development, sustainable cities, smart cities, vertical cities, urban morphology, urban aesthetics and townscape, urban structure and form, urban transformation, local and regional identity, design control and guidance, property development, practice and implementation.

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