



ICCAUA Proceedings Journal

Proceedings of the international conference of contemporary affairs in architecture and urbanism-ICCAUA
Volume 9 (December 2026), 2610371

ICCAUA
Proceedings *Journal*
<https://journal.iccaua.com/>

Journal homepage: <https://journal.iccaua.com/>

DOI: <https://doi.org/10.38027/ICCAUA2026EN0371>

Reading and Analysing Alan Kadıköy as a Kinetic Performance Space

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Abstract

Received: 18.04.2026
Revised: 19.06.2026
Accepted: 01.07.2026
Available online: 10.07.2026

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This article has been selected and peer-reviewed for publication in this journal as part of the 9th International Conference of Contemporary Affairs in Architecture and Urbanism, held on 7–8 May 2026 in Istanbul, Türkiye.

Kinetic architecture views architectural space not as a fixed form, but as a dynamic system that can adapt to changing uses and user interactions through movable elements and transformable spatial configurations. In performance spaces, this approach questions the traditional concept of a fixed stage by allowing for different staging formats, flexible audience-actor relationships, and multi-purpose use. This study examines Alan Kadıköy as an example of a contemporary kinetic performance space. The building incorporates adaptable stage design, modular spatial components, telescopic seating systems, and flexible halls supporting different performance scenarios. Its spatial organization creates a transformable performance environment by allowing for the re-imagining of stage, audience, and backstage relationships. While existing studies examine kinetic architecture in specific contexts, this study aims to reveal the spatial and experiential contributions of kinetic architecture to performance spaces through the example of Alan Kadıköy and to offer a guiding framework for future performance structures.

Keywords: Kinetic Architecture; Alan Kadıköy; Performing Arts Centers; Spatial Flexibility; Contemporary Theatre.

1. Introduction

Throughout the history of architecture, the concept of space has mostly been treated as a fixed, defined, and singular use; the relationship between function, form, and structure has been constructed in accordance with this fixity. However, with the development of technologies, changing user expectations, and the widespread adoption of interdisciplinary production methods, architectural space has transcended being a static object. Today, architecture is considered not only a practice of producing a physical environment, but also a dynamic system open to user experience, temporal change, and multiple scenarios. This transformation is particularly visible in performance arts spaces, where body, movement, and experience-based productions are central.

Performance spaces are unique spatial typologies where theatre, dance, music, and interdisciplinary performing arts are performed, and where the relationship between stage, audience, and space is experienced directly. While traditional theatre structures, dating back to ancient Greece, were mostly based on fixed stage arrangements and specific viewing patterns, contemporary performance spaces question and transform these spatial patterns.

The relationship between performance and space extends beyond a mere representation on stage, encompassing the entirety of the space. This necessitates a rethinking of performance spaces in terms of flexibility, transformability, and multi-purpose use. In this context, kinetic architecture stands out as a significant design approach that allows architectural space to be considered as a system capable of adapting to changing conditions and uses. The physical transformation of space through movable structural elements, modular components, and digitally controlled systems redefines the concepts of time, movement, and experience in architecture. These potentials offered by kinetic architecture become not only a technical solution but also a narrative and experiential tool for performance spaces. Performance spaces incorporating kinetic architecture elements allow for a diversification of staging methods, a re-imagining of the audience-actor relationship, and the functioning of space as an active component of the performance.

Alan Kadıköy is a contemporary performance center located in Istanbul that exemplifies the application of kinetic architecture principles in performance spaces. The building is designed to accommodate different performance types, featuring both a multi-purpose lower hall and a main stage hall. The lower hall can be divided into various spaces via movable panels, while the upper hall maximizes the potential interactions between performers, audience, and the space, supported by movable seating arrangements, storage areas, and infrastructural systems. This allows for the presentation of diverse staging formats and the integration of the performance with the space. Alan Kadıköy serves as a prime example of a design application that demonstrates the flexibility and transformative potential offered by kinetic performance spaces, serving as a model both technically and experientially.

This study aims to address a gap in the literature by examining the use of kinetic architecture in the context of performance spaces, using the Alan Kadıköy example. While existing studies primarily focus on the technological, environmental, and structural dimensions of kinetic architecture, the spatial and experiential impacts of kinetic systems in performance spaces have been relatively insufficiently explored. The originality of this research stems from its focus not only on the technical characteristics of kinetic architectural elements but also on the relationship between kinetic systems and spatial organization, the stage-audience relationship, and user experience. Through analyses conducted using the Alan Kadıköy example, the contributions of kinetic architecture applications to flexibility, transformability, and multiple use scenarios in a contemporary performance and show space are revealed. Accordingly, this study not only documents a current and significant example from Turkey but also contributes to the existing literature by examining how kinetic architecture can function as an experiential and performative design approach. Furthermore, the findings aim to provide a conceptual framework and design outputs that can guide future research and the design processes of adaptable performance spaces.

1.1. Research Problem

In the current literature, kinetic architecture is mostly discussed through the lens of facade systems, environmental performance, or technological innovations; its use in performance spaces and its spatial and experiential contributions are not examined in sufficient detail. In particular, there is a lack of academic research on how kinetic systems affect performance and how they contribute to the spectacle and user experience. This situation necessitates a re-evaluation of kinetic architecture within the context of performance spaces.

1.2. Aim of the Research

This study aims to examine the application of kinetic architecture principles in performance spaces, using the Alan Kadıköy building in Istanbul as an example. Alan Kadıköy stands out as a contemporary and active example that embodies the concept of a kinetic performance space with its transformable spatial design allowing for diverse staging formats and its mobile and modular systems. The main objective of this study is to explain how the flexibility potential envisioned in the building's design is reproduced through the performances staged there, and how the space is transformed through action.

1.3. Scope of the Research

This study first addresses the concepts of kinetic architecture and performance spaces within a theoretical framework; then, it examines the development and fundamental characteristics of kinetic performance spaces. Subsequently, the Alan Kadıköy building is analyzed through its general and architectural features, spatial organization, kinetic systems, and usage scenarios, and the possibilities offered by kinetic architecture for performance spaces are evaluated. The findings are discussed in the conclusion section.

2. Materials and Methods

This study adopts two different approaches: qualitative research methodology and case analysis (Figure 1). The study consists of two main stages: a literature review and a case study analysis. First, the concept of kinetic architecture is examined within a theoretical framework, and its contemporary use is investigated. Subsequently, the change and development of performance spaces, from ancient Greek theater to contemporary performance art spaces, is evaluated, and presented in terms of spatial organization, stage-audience relationship, and diversity of use. Then, in line with these concepts, the Alan Kadıköy building is taken as a case study, and its general architectural features, spatial organization, and different usage scenarios are examined. The building is analyzed in terms of the role of kinetic systems within the space, the building's capacity for transformation, and the flexibility it provides to the performance space.

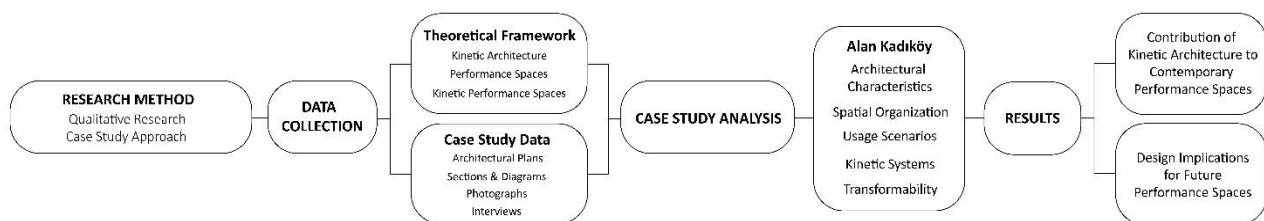


Figure 1. Method diagram of the study (Developed by the Authors).

2.1 Basic Concepts

2.1.1 Kinetic Architecture

While the term "kinetic" refers to anything produced by movement, the term "architecture" refers to the design of a structure or structures (Hornby, 2010). In this context, when these two concepts are combined, the concept of "Kinetic Architecture" refers to the design of buildings produced through movement and the physical change that occurs as a result of this movement (Fouad, 2012). In contrast to the nature of architecture, which has been a static concept since ancient times and defined through fixed and permanent structures, it encompasses architectural approaches where movement becomes a fundamental part of the design. Although the concept of kinetic architecture first emerged in the 1970s, kinetic features are seen in many structures such as retractable shutters, modular tents, and movable bridges (Fouad, 2012). Traditional tent systems, such as nomadic tents and yurts, are considered among the earliest examples of kinetic

architecture applications (Taşan, 2024). In this context, kinetic architecture can be considered not only a physical transformation but also a design approach that enables the re-imagining of spatial organization (Duran, 2019). Today, the accelerating pace of technological advancements and the increasing needs of users have rendered the limitation of spaces to singular and fixed usage scenarios insufficient, giving rise to design approaches that prioritize spatial flexibility (Çakır, 2021). In this process, the integration of new technologies into the field of architecture has enabled structures to transform both functionally and physically. Movable wall and facade systems, and retractable or sliding roof elements are concrete examples of this transformation (Ramzy and Fayed, 2011). The concept of kinetic architecture can be defined as a design approach that aims for structures to change and transform in a way that adapts to environmental conditions, user needs, and different usage scenarios.

Primitive movable systems and traditional awning applications that emerged before the Industrial Revolution can be seen as the first examples of kinetic architecture. Due to limited technical possibilities, these examples mostly involved simple and unidirectional movements. Towards the end of the 20th century, as a result of the development of technological infrastructure, the concepts of movement, flexibility, and transformability began to be incorporated into contemporary building systems in a more comprehensive and multifaceted way (Korkmaz, 2004). Today, foldable and movable facade systems, wall and roof elements, variable floor mechanisms, and telescopic stage systems can be given as examples of current applications of kinetic architecture. Thanks to these systems, the capacity of buildings can be increased in line with different uses, and spaces can be rearranged according to different functions. This enables the development of adaptive spatial proposals that can adapt to user needs, offering significant advantages in terms of increasing energy efficiency, ensuring more efficient long-term use of buildings, and rationally evaluating resources (Korkmaz, 2018).

2.1.2 Performing Arts Centers

Stages are designable spaces where various performing arts such as theatre, ballet, opera, and concerts are showcased, where users experience the performances presented by the artists, and which form the central focus of the show (Uysal, 2016). The stage is a performance space where the actor's world and narrative are presented (Yıldız, 2005, p. 425). Initially designed without much attention to spatial characteristics, these spaces have gradually transformed into flexible and free spaces adaptable to different uses and needs with the development of the concept of stage design. Stage design is a process that takes place from the creation of a performance to its transmission to the audience. This process encompasses different disciplines such as architecture, painting, music, lighting, set design, and costume design (Sevindik, 2013). In this context, the audience cannot be ignored in the stage design process; it becomes an indispensable element.

The historical development of the stage, beginning with ancient Greek theaters, has evolved into contemporary performance arts centers, and this development has been shaped in terms of the audience, the artist, and the performance space. Initially, rituals, festivals, and plays, shaped by the needs of society, were performed on flat areas whose boundaries varied according to the performance (Sözber, 2010). As plays developed and became written, the spatial requirements of the stage concept increased. During this period, due to insufficient technology and limited architectural possibilities, slopes were used as seating areas, and the performance space was moved to the foothills of the Acropolis (Kuruyazıcı, 2003). The amphitheater seating arrangement surrounded the circular orchestra, creating a visual and auditory link between the audience and the performers. In this way, it transformed the stage into a social ritual space (Carlson, 2015). During this period, theaters were designed as open-air spaces (Çalışlar, 1980). In the Roman period, the development of arch and vault systems led to the construction of multi-story, high-capacity theaters on flat terrain, away from slopes (Uysal, 2016). Looking at the Middle Ages, the influence of the church affected theater structures; plays were mostly performed on religious themes and showcased in different areas using portable, temporary stages. With the increasing importance of the concept of perspective in the Renaissance and its use in sets, along with the development of stage mechanisms, theater structures transformed into enclosed spaces, resulting in the separation of the audience from the stage (Uysal, 2016). With the emergence of opera in the 17th century, the orchestra pit was integrated into theater spaces, and subsequently, supporting spaces such as foyers and entrance halls were added to the stage design (Temel, 2010; Uysal, 2016). The use of light in stage design gained importance with the invention of electricity and the light bulb, and the development of mechanical systems used on stage made performance spaces more complex and powerful.

With the increasing advancements in technology over time, the stage has evolved from a fixed performance space into a flexible structure that adapts to different types of performances and shows (Sarıca Ünal, 2023). In the 21st century and beyond, the rise of kinetic architecture applications has highlighted the importance of mobile systems, multifaceted mechanisms, and digital technologies, contributing to the creation of diverse stage designs (Kama, 2024). Accordingly, contemporary performance art spaces designed today have become flexible spaces that can adapt to different uses, reflecting the evolution of the stage concept. Flexible spaces that can be modified and transformed into different scenarios are created thanks to movable wall and floor systems, foldable seats, movable stage platforms, modular seating arrangements, and digital systems.

2.1.3 Kinetic Performing Arts Centers

Kinetic performance spaces are contemporary performance spaces composed of flexible, transformable, and dynamic structural elements that have developed through the adaptation of kinetic architectural principles and kinetic systems to spaces where performance arts are practiced. Physical transformation is achieved in these spaces through the application of different staging methods and the establishment of variable seating arrangements. Movable floor, wall, ceiling, and roof elements, platforms, modular seating systems, and systems that can slide vertically and horizontally are prime examples of this transformation (Fox & Yeh, 2000). Kinetic performance spaces move beyond the traditional fixed theater concept by enabling the design of creative spaces. In this context, the connection between the audience, the performer, and the performance space becomes crucial and an integral part of the performance. The flexible use of the space increases

the potential for re-establishing the audience-performer relationship and contributes to creating a more dynamic atmosphere for the audience (Hensel, 2012).

The kinetic systems and structural elements used in these spaces can be controlled manually or digitally as needed. Examples of these elements include rotating stage platforms, elevator stages, telescopic seating units that can slide horizontally or vertically, movable backstage walls, height-adjustable floors, and mobile set designs. These systems can quickly and efficiently adapt to the spatial changes required by different staging formats. With increasing technological advancements, the preference for digitally controlled automation systems offers precise, fast, and safe operation. This provides advantages such as reduced production costs, shorter setup times, and increased operational efficiency. In this context, the movable elements and kinetic systems used in kinetic performance spaces are seen as fundamental design tools that can enhance the multi-purpose potential of the space and contribute to the diversity of staging.

2.2 Alan Kadıköy Example

Alan Kadıköy is a modern cultural theatre building located in Istanbul, designed by the Kadıköy Municipality in 2016 (Figure 2). During the design process, the opinions of various users, including theatre artists, scriptwriters, and stage managers, were valued and influenced the fundamental design decisions. The main approach during the design phase was to create a flexible interior design that could adapt to various demands, needs, and scenarios in line with changing and evolving requirements (Barka & Bingöl, 2022). In this context, low-maintenance and high-strength clinker pressed brick, titanium zinc, and exposed concrete were chosen as the main building envelope materials, and appropriate detail solutions were developed for these materials (Bingöl & Barka, 2021).



Figure 2. Alan Kadıköy Building (Arkitera Architecture Center, n.d.).

The building consists of a total of six floors, three above ground and three below (Barka & Bingöl, 2022). The ground floor houses the entrance hall and café in a colonnade, a multi-purpose, divisible hall, and foyers serving these halls, as well as restrooms, backstage areas, dressing/preparation rooms, and storage areas (Figure 3). The multi-purpose hall on the ground floor can be divided into spaces of different sizes thanks to movable folding panels, adapting to different types of performances. This provides a holistic usage possibility for the building.



Figure 3. Interior of Alan Kadıköy Building (Arkitera Architecture Center, n.d.).

The building's basement floors house technical spaces, storage areas, and an indoor parking garage, while the first floor contains the building's main space: a contemporary theater (Figure 4). This hall, which hosts professional performances and shows, is described as a "volume stage" (Bingöl & Barka, 2021). The storage areas located behind the hall and in the basement are connected by a movable loading platform. The multi-purpose hall on the ground floor is designed to accommodate different usage scenarios, such as more amateur events, exhibitions, and experimental performances,

compared to the theater on the first floor. The interconnectedness of these two halls is one of the building's fundamental design strategies. This provides a rich spatial range for performances.

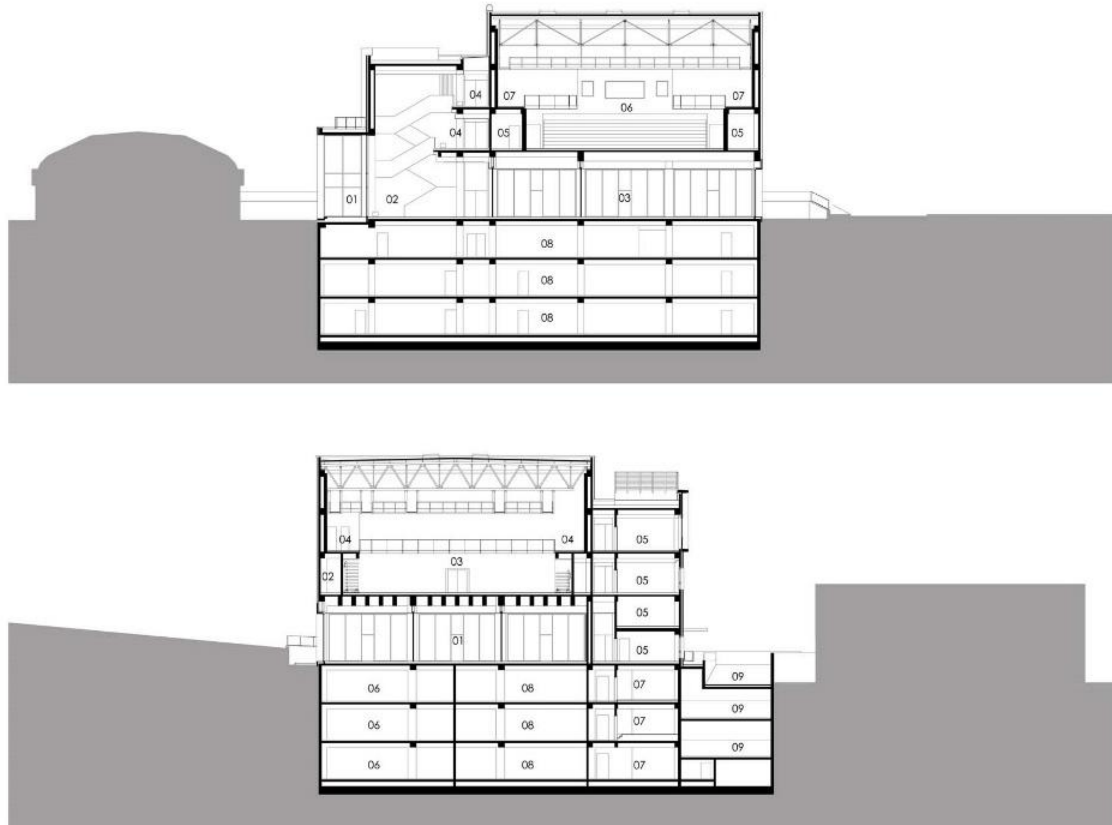


Figure 4. Sections of Alan Kadıköy Building (Arkitera Architecture Center, n.d.).

There are two reference points that influenced the design process of the building and shaped its spatial structure. The first reference point is Aykut Köksal's theoretical texts on contemporary theatre spaces dating back to the 1970s (Ötkünç, 2024). In these texts, Köksal reveals the development of theatre spaces over time and evaluates the potentials brought about by this development (Köksal, 2022). These texts provided an important intellectual framework in the design process. The second point of reference is the performative productions of the Spanish theatre company La Fura dels Baus, which redefine the actor-audience relationship, expand the boundaries of theatrical space by going beyond the conventional, and offer users the opportunity to experience different things (Ötkünç, 2024). This company, which breaks the conventional concept of the stage, makes the audience a part of the performance and removes the space from being a fixed entity. In this way, it provides users with different theatrical experiences (Bingöl & Barka, 2021). As seen in Figure 5, the performances are staged in unconventional contexts such as open spaces and industrial areas, instead of the fixed and closed stages that have been used from the past to the present. This indicates that theatrical space cannot be limited to a single location and that it can be freely re-imagined. These two reference points were considered as two fundamental components that complement each other in the design of the contemporary theatre space and played a decisive role in the design process of the building (Ötkünç, 2024). They ensured that the space was conceived as a void that allows for versatile, flexible, and diverse uses, aiming to improve audience-actor relationships.



Figure 5. The Play of La Fura dels Baus (La Fura dels Baus. n.d.).

3. Results

3.1 Analysis Of Alan Kadıköy

The multipurpose hall and contemporary theatre space located in the Alan Kadıköy building are two examples of flexible and transformable performance spaces where kinetic systems are applied. On the ground floor of the building is a multipurpose hall that can be used holistically and adapted to different performance types and events (Figure 6). The kinetic system of this hall consists of vertically organized but horizontally movable folding acoustic partition panels. This hall, which is integrated into a suspended ceiling and boasts a strong acoustic infrastructure, can transform into different hall types and accommodates various events such as exhibitions, conferences, meetings, and workshops.



Figure 6. Multi-purpose Hall (Arkitera Architecture Center, n.d.).

During the building's initial period of use, the multi-purpose hall on the ground floor was not actively used, resulting in its temporary conversion into a gallery. Later, it was transformed from a gallery into a space designed to accommodate a wide variety of events. This change enriched the building's overall potential and led to high demand for different usage scenarios. As shown in Figure 7, the building can be divided into varying numbers of halls via folding panels, each with its own function. This demonstrates how kinetic systems contribute to the rich use of the space.

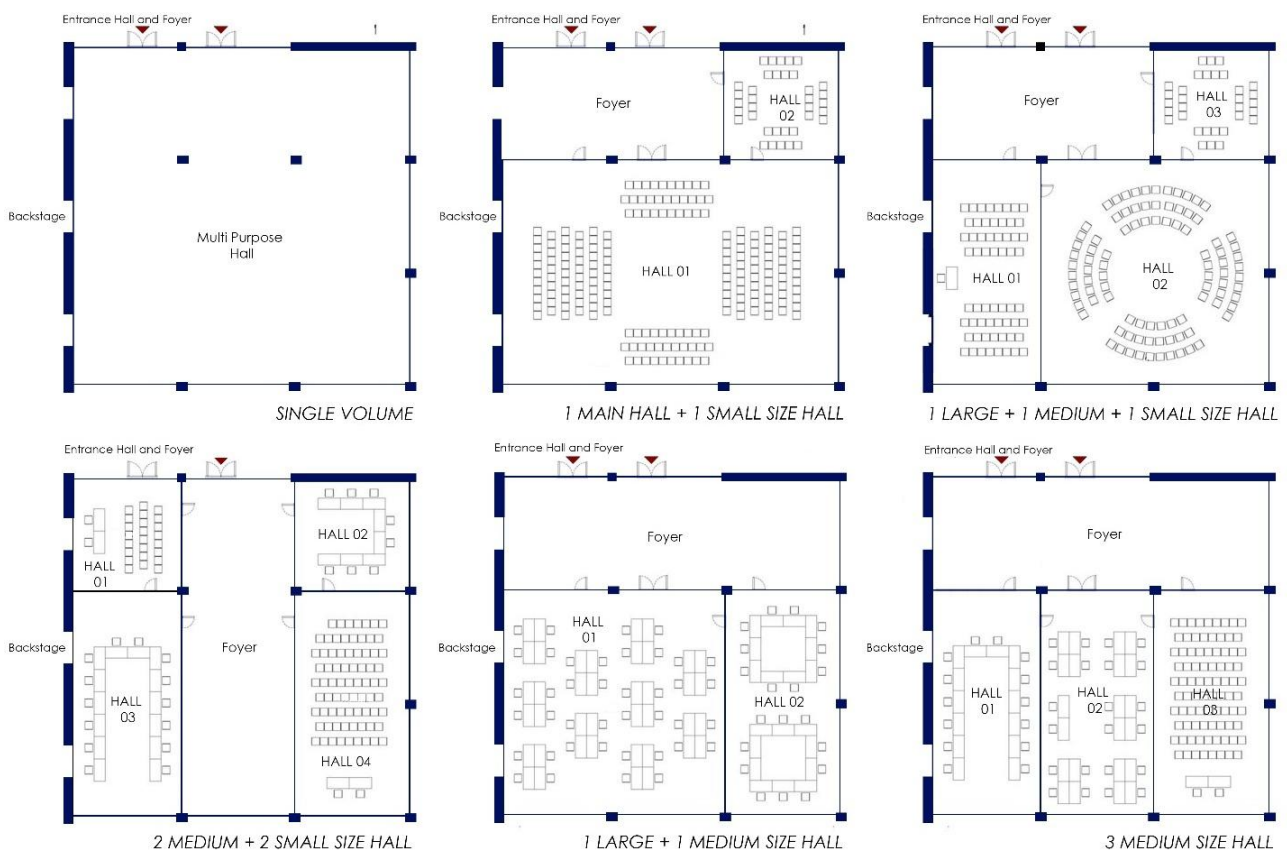


Figure 7. Different usage scenarios of the multi-purpose hall. (Produced by the authors).

The contemporary theatre hall, the main space of the building, is designed to strengthen the relationship between actor, audience, artist, and space, and to allow for different usage scenarios. This hall, which can change from play to play and can be transformed into a concert area by removing all seating arrangements when necessary, aims to adapt to all potential possibilities that may arise in both horizontal and vertical planes. For this reason, the main theatre hall is designed as a non-directional, square-plan space. An artist circulation line has been designed around the hall, encircling it at two different levels, allowing actors to move around the hall 360 degrees (Bingöl & Barka, 2021). This design provides accessibility to the hall from different points and allows for its infinite use.

In addition, the seating arrangement, which is stored in the walls and can be opened by sliding, allows for different uses and gives the hall great flexibility (Figure 8). Thanks to the infrastructure located at the back of the hall, including storage areas, freight elevators, acoustics, stage mechanics, lighting, sound and video systems, various spatial arrangements can be implemented easily and quickly.

In this structure, the use of movable systems such as platforms and seat mechanics operating from the ground was not preferred due to their delicate nature and high risk of failure. For this reason, telescopic systems consisting of tribunes that open from two slots and move horizontally are used in the theater hall, which is also described as a "volume stage".



Figure 8. Theater Hall (Arkitera Architecture Center, n.d.).

One of the most unique spatial features of the Alan Kadıköy building is the artist circulation line located in the upper hall, which surrounds the theater hall with a 360-degree backstage area – a spatial organization rarely seen in the history of theater buildings. This allows artists to move seamlessly around the stage space in 360 degrees, creating a unique and continuous stage-backstage relationship. This relationship prevents the performance from being dependent on a single facade or direction by allowing artists to access the hall from different points. The definition of the stage as "directional" and "square" reinforces this concept. Thus, the hall becomes a free and open structure adaptable to an infinite number of configurations.

The contemporary theatre hall can be configured in infinitely different ways thanks to the kinetic systems and spatial design decisions used in the structure. In addition, different usage modes have been proposed to allow the building's technical infrastructure to adapt to flexible usage scenarios, enabling the application of lighting, sound, ventilation, and climate control systems. The diagrams shown in Figure 9 were created to allow the building's technical infrastructure to adapt to flexible usage scenarios, rather than limiting the use of the space to specific forms. In this way, as spatial configurations change, different working rooms can switch to different modes, and temperature, airflow, and technical requirements can be regulated between the volumes encompassing the hall.

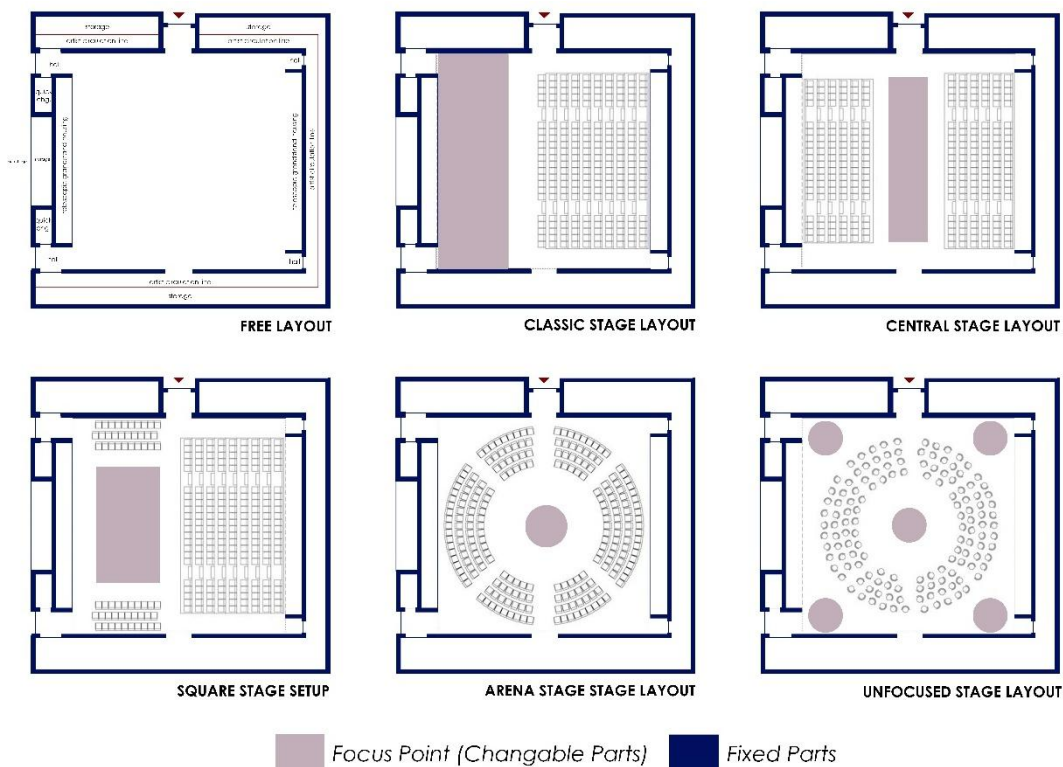


Figure 9. Different usage scenarios of the Theater Hall. (Produced by the authors).

Following the completion of the building, numerous plays were staged there, some revealing diverse spatial potentials not foreseen during the design process. The use of space changed according to the different plays, resulting in a rich

variety of performance types. For example, in the plays “Mehmet Baydur Retrospective” and “Old Fools,” performances were organized to move vertically, creating a fluid narrative between the upper and lower levels (Ötkünç, 2024). In the play “Lost Steps,” which utilized a 360-degree backstage arrangement, all set and costume changes were openly performed along the planned artist circulation line, ensuring the play could only be staged in this space (Figure 10). Such uses contributed to the audience becoming part of the performance and experiencing the play. This stems from the spatial richness offered by kinetic architecture and the strong relationships it establishes with different disciplines.



Figure 10. The play "Kayıp Adımlar" (Alan Kadıköy, n.d.) and the play “Old Fools” (Taken by authors).

4. Discussion

The Alan Kadıköy example demonstrates that kinetic architecture cannot be defined solely through movable structural elements or technological systems, but must be considered as a holistic design approach encompassing spatial organization, technical infrastructure, usage scenarios, and user experience. The building's flexibility is not limited to a few predefined stage layouts, but offers a potential space that is recreated through the interaction of artists and other stakeholders. Aykut Köksal's theoretical approaches to contemporary theatre space and the spatial relationship established with experiential theatre practices such as La Fura dels Baus ensure that Alan Kadıköy is a relevant example not only on a local scale but also in an international context.

The building's flexible structure, adaptable to different performance types, challenges the traditional understanding of theatre based on a fixed stage-audience relationship, transforming the space into a dynamic performance area that can be constantly recreated. Thanks to movable seating arrangements, foldable acoustic panels, telescopic grandstand systems, and a 360-degree artist circulation line, the structure adapts to different staging forms and alternative spatial scenarios.

5. Conclusions

This study examines the Alan Kadıköy building within the context of kinetic architecture and contemporary performance spaces; its spatial organization, kinetic systems, and flexible usage scenarios are evaluated in detail. The findings reveal that the building offers a performance environment that can adapt to different types of performances thanks to its mobile, flexible, and transformable technical and spatial components. In particular, the foldable acoustic partition panels in the multi-purpose hall, the telescopic grandstand systems in the main theater hall, and the artist circulation line that surrounds this hall 360 degrees allow for the re-imagining of stage-audience relationships and support different performance forms. The analyses revealed that the kinetic systems and features used in Alan Kadıköy are not limited solely to the presence of moving elements; the overall spatial organization of the building also supports this kineticism. Instead of offering a limited number of designed stage arrangements and usage possibilities, the building creates a flexible framework where artists, directors, and users can reinterpret and rearrange the space according to different performance scenarios. In particular, plays such as "Lost Steps" and "Old Fools," performed in this building, demonstrate that the spatial potential of the structure redefines the relationships between actors, audience, and the architectural space, transforming the building from a passive shell into an integral part of the performance.

The main objective of this research is to examine the use of kinetic architecture in performance spaces through the example of Alan Kadıköy and to reveal the contributions of this approach to spatial flexibility and user experience. The findings show that kinetic systems not only provide technical adaptability but also directly influence spatial perception, the way performances are structured, the audience experience, and user interaction. This supports the research objective stated at the beginning of the study and indicates that kinetic architecture should be considered an important design approach in the design of contemporary performance spaces.

While the existing literature mostly addresses kinetic architecture through facade systems, environmental performance, and technological innovations, this study offers a unique contribution to the literature by examining kinetic architecture within the context of performance spaces. The analyses conducted on the Alan Kadıköy building reveal the effects of kinetic systems on spatial flexibility, transformability, multi-purpose use, and user experience; in this respect, it contributes to the limited number of studies on the use of kinetic architecture in performance spaces.

In conclusion, the Alan Kadıköy structure can be considered a significant example demonstrating the potential of kinetic architecture in contemporary performance spaces. By integrating flexibility, transformability, and multiple use scenarios within a holistic architectural system, the building offers important implications for future performance and entertainment venues. Accordingly, this study not only analyzes a contemporary performance structure but also provides a conceptual and practical framework for the design of kinetic performance spaces, serving as a reference for future research and design work.

Acknowledgements

We confirm that, as non-native English speakers, we used ChatGPT 5.0 and Grammarly Pro exclusively for proofreading and checking for grammatical errors. No content was generated by the AI beyond basic language refinement.

Funding

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Conflicts of Interest

The author(s) report no conflicts of interest.

Data Availability Statement

No new data were created or analysed in this study; all sources are cited within the article.

Institutional Review Board Statement

Not applicable.

CRedit Author Statement

Conceptualisation: H.B., Y.A.; Methodology: H.B., Y.A.; Writing – original draft: H.B., Y.A.; Writing – review & editing: H.B., Y.A.; All authors have read and approved the final version of the manuscript.

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