

Leveraging Ephemerality in Tactical Urbanism and Pavilion Design

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ABSTRACT:

This paper explores ephemerality as a key framework in tactical urbanism, particularly through pavilion design. As cities evolve, designers increasingly use temporary structures to redefine user interactions, foster creativity, and experiment with new spatial concepts. Through a mixed-method approach—including surveys, interviews, and case studies—this research examines how pavilions function as dynamic, adaptable spaces that challenge conventional design paradigms. By leveraging temporary structures within urban gaps, pavilions serve as living laboratories that enhance engagement, stimulate innovation, and contribute to urban vitality.

Keywords: Ephemerality, Tactical Urbanism, Pavilions, Adaptive Design, Urban Transformation

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I. INTRODUCTION:

The evolving landscape of urban design has ushered in a renewed focus on ephemerality and temporary urbanism, responding to the challenges of rapid urbanization and the need for more flexible, adaptive spaces. Unlike conventional urban planning, which often struggles to keep pace with shifting community needs, ephemeral interventions offer dynamic, short-term solutions that foster cultural expression, creativity, and experimentation. This shift has redefined urban environments, allowing for spontaneous, interactive, and immersive experiences that challenge the rigidity of permanent structures.

At the forefront of this transformation is the role of pavilions—temporary yet impactful structures that blur the boundaries between architecture, art, and urban design. As cities evolve, pavilion design has adapted to reflect changing lifestyles, technological advancements, and the future needs of urban dwellers. These structures transcend conventional buildings by engaging more deeply with their surroundings, fostering stronger connections between people, space, and the natural world. Their temporary nature encourages experimentation with materials, construction techniques, and spatial configurations, making them ideal for testing innovative design solutions before broader implementation.

This research delves into the intersection of ephemerality and pavilion design, examining how these temporary structures contribute to urban vitality, social engagement, and spatial adaptability. Through a comprehensive analysis of innovative

design strategies, adaptable and interactive construction techniques, and community-driven approaches, this study aims to highlight how pavilion architecture can serve as a model for responsive, transformative urban spaces in the 21st century.

II. SCOPE OF STUDY:

The paper centres on examining the evolving significance of ephemeral pavilions within urban settings, examining their influence on architectural innovation, public engagement, and the cultural redefinition of urban spaces. Additionally, it will investigate the parameters that are taken into account when designing such ephemeral structures. To comprehend the dynamic interplay between these structures and their environment, case studies and research of their impact on the urban fabric will be used as a guide. The research may be constrained by the subjective interpretation of the impact of pavilions on urban spaces due to varying cultural, social, and geographical contexts. Additionally, the study's scope might be limited by the availability of comprehensive data and the transient nature of ephemeral structures, potentially affecting the depth of analysis.

III. METHODOLOGY:

Considering the experimental and inferential nature of this research, a mixed-methods approach integrating qualitative and quantitative tools like survey questionnaires and case studies will be employed. To facilitate data collection, a careful

selection process will identify several ephemeral pavilions and urban structures. Subsequently, these selected structures will be developed into detailed case studies. The paper offers a qualitative discussion of the specifications of the structures chosen and assembles them into category of parameters that fall under it. Surveys will guide the exploration of ephemeral pavilion design, while data for tactical urbanism is sourced from literature review and referenced case studies within the paper. The survey entailed of 19 questions and had collected 125 responses and was conducted among users of age groups ranging from 15 to 40+ years.

IV. REVIEW OF LITERATURE:

Permanence is often seen as the default in urban design, overlooking the fluid and ever-changing nature of cities. This focus on permanence limits adaptability to social, economic, environmental, and cultural shifts. While lasting construction is a hallmark of quality architecture, temporary structures challenge this norm, fostering creativity and bold experimentation. Many iconic landmarks today began as temporary installations but gained cultural significance over time (Tempone, 2023). The future of urbanism lies in flexibility, openness, and temporality. Whether through grassroots initiatives, public awareness projects, or municipal interventions, adaptable design strategies are shaping more responsive and dynamic cities.

Features of Ephemeral Structures:

- Built with inexpensive, easily removable materials.
- Designed to be bold, creative, and exceptional.
- Encourage risk-taking and innovation.
- Can gain cultural relevance, transitioning from temporary to permanent.

Origin & Evolution of Ephemeral Pavilion Design within Urban Spaces

The evolution of pavilion design reflects a dynamic narrative of temporality and architectural innovation. These ephemeral structures, often created for festivals and events, hold cultural significance and strong visual impact. From Athenaeus' third-century Greek masterpiece to Serpentine Galleries in London and world expo pavilions, such designs embrace impermanence to reshape urban landscapes. The Serpentine Pavilion series showcases experimental architecture, while world expo pavilions, like the Crystal Palace (1851), symbolize technological and cultural milestones. Ephemeral architecture transforms urban spaces into dynamic, creative, and participatory environments, highlighting the interplay between temporality and urban design (Sterling, 2023).

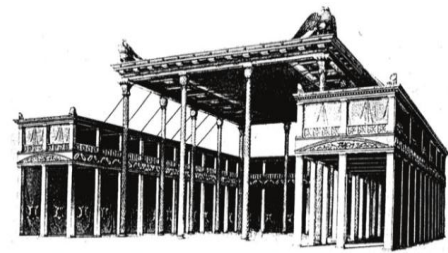


Figure 1 *Graphic reconstruction of Ptolemy's Pavilion by Frank Studniczka*

(Fig 1) Such sort of architecture originated among the Egyptians. In *Deipnosophistae*, a primitive third-century Greek serve by Athenaeus, a transitory pavilion erected by Ptolemy Philadelphus in his Egyptian capitol in 275/274 BCE, for the supper at the completion of his Royal Parade - possibly an extremely extravagant and eccentric spectacle in ancient timelessness. (tempone, 2023)



Figure 2 *Triumphal arches represent a particular kind of fleeting structures*

(Fig 2) Following that, in early Rome, a corresponding custom persisted, with transitory structures used to coordinate civic festivals and military triumphs. For that purpose alone, the arches of triumph were built to commemorate the victories. During the medieval era, the custom of constructing arches persisted, but mainly to greet rulers who made visits to the major European towns. (Tempone, 2023)

The Crystal Palace, built for the 1851 Great Exhibition in London, was a groundbreaking pavilion that revolutionized urban spaces and architectural design. Its iron and glass construction symbolized the Industrial Revolution's technological advancements, challenging traditional notions of permanence in urban design. As a temporary structure, it attracted millions of visitors, demonstrating how ephemeral architecture can transform cities and stimulate discussions on adaptability and innovation (Lesso, 2018). Ephemeral architecture first gained prominence during the Renaissance when temporary structures adorned cities for royal arrivals. Made from wood and plaster, these elaborate facades showcased

opulence, later evolving in the Baroque era for religious ceremonies and royal celebrations. Esteemed architects like Bernini created extravagant one-night banquet hall designs to astonish guests.

A second peak of ephemeral design emerged in the early 20th century, driven by industrial advancements, media growth, and global communication. No longer limited to royal or religious occasions, temporary structures became tools for cities to assert economic prominence (Tempone, 2023).

The Eiffel Tower, built for the 1889 Expo Universelle, exemplifies this shift. Initially intended for dismantling post-event, public admiration secured its preservation despite criticism of its unconventional materials and form (Tempone, 2023). These examples highlight ephemeral architecture's lasting impact on urban identity and innovation.

Shifting Perspectives on Ephemeral Urban Spaces

The human physique, like all natural entities, is transient. This raises questions about constructing and developing communities while considering material impermanence. From temporary structures to enduring landmarks like the Roman Pantheon, architecture reflects a cycle of change, shaping and adapting to evolving environments.

Urban transformation highlights the need for radical, sustainable changes in cities. This complex process reshapes urban functions, addresses local needs, and redefines interactions between cities and their surroundings. Public spaces, crucial for social engagement, must adapt to growing cultural and human complexities. Architects and planners face the challenge of designing inclusive, adaptable spaces. Emerging urban design trends redefine successful public environments, ensuring they remain responsive to evolving societal needs (Reinhold, 2014).

Ephemeral Pavilions

Architecture is traditionally seen as permanent, yet ephemeral architecture has long played a vital role in cultural and urban evolution. These temporary structures encourage architectural experimentation, fostering innovation in design, materials, and construction methods. By challenging conventional norms, ephemeral architecture reshapes urban spaces and enhances public engagement.

Modern ephemeral pavilions have evolved from simple installations into dynamic hubs for community interaction, cultural exchange, and artistic expression. No longer just temporary novelties, they contribute to urban revitalization and sustainability. Pop-up galleries, event spaces, and

experimental designs redefine public spaces, making them more inclusive and adaptable (Asato, 2018).

Strategically placed in open spaces or alongside emerging structures, these pavilions invite public interaction, encouraging people to engage with and experience architecture in new ways. Free from traditional constraints, they provide a flexible platform for exploring bold architectural ideas. Their transient nature allows them to respond to changing urban needs, fostering a sense of place while remaining adaptable.

Beyond aesthetics, ephemeral structures influence architectural discourse and urban dynamics. By engaging designers, surroundings, and audiences, they challenge the notion of permanence, positioning themselves as catalysts for creativity and cultural engagement. As cities evolve, ephemeral architecture will play an increasing role in shaping public spaces, offering innovative solutions for sustainability and social inclusivity.

In the future, these temporary structures will continue to transform urban landscapes; ensuring cities remain dynamic, responsive, and culturally rich through ever-evolving architectural experimentation.

Tactical Urbanism:

Tactical urbanism encompasses approaches to targeting projects with a high degree of replicability. The efficacy of these viral projects is dependent on three factors: the basic nature of such urban interventions, their replication, and the versatility of the web as a medium for imparting knowledge. Tactical urbanism encompassing basic, low-cost, yet highly apparent interventions is capable of dramatically enhancing the overall condition of open spaces whilst additionally enabling us to gain insight into the demands of users while evaluating outcomes. A similar intervention in various circumstances will usually result in various outcomes. Pop up structures as well as tactical urbanism ideally suit into "lighter, quicker, and cheaper", notion of enabling exploratory, and basic, economical interventions.(Reinhold, 2014)

Unraveling the Transient and Transformative Realm of Ephemerality:

Ephemeral pavilions in urban societies act as transient architectural interventions, reshaping urban spaces by fostering change, innovation, and cultural dialogue. These temporary structures generate dynamic energy, encourage experimentation, and promote sustainability through material reuse and functional adaptability. Characterized by simplicity and flexibility, ephemeral architecture enables disassembly, reconfiguration, and repeatability.

Technological advancements enhance ephemeral designs, making them foldable, mobile, and adaptable to evolving needs. These structures create immersive spatial experiences, fostering engagement between artworks, spaces, and audiences. Temporary exhibitions, aligned with cultural shifts, drive innovation and new design approaches, redefining urban environments.

The significance of urban voids and ephemerality in contemporary architecture and urban planning emphasizes the role of temporary interventions in revitalizing underutilized spaces. It highlights how informal interactions within these spaces can lead to transformation and community-driven development. Place making emerges as a key approach, focusing on human-centered urban design that fosters social interaction, inclusivity, and cultural identity. By repurposing underutilized areas with green spaces, public art, and recreational facilities, while ensuring accessibility and safety, cities can create more vibrant environments. Events, markets, and cultural programs further activate these spaces, promoting adaptability and sustainability. An example of this concept is Mextropoli, an annual architecture and urbanism festival in Mexico City that champions ephemeral urbanism through workshops, exhibitions, and temporary pavilions. Initiatives like the Grafo Pavilion illustrate how temporary structures can merge art and architecture to create engaging and dynamic spaces. The document also identifies emerging parameters of ephemerality, including **interactivity**, which ensures adaptability through digital engagement; **form**, where circulation, lighting, and landscape design shape user experience; **materials**, which balance innovation and sustainability; and **social dynamics**, where ephemeral structures enhance **cultural identity, social interaction, and long-term urban impact**. These principles guide architects and urban planners in designing **responsive, inclusive, and ever-evolving urban spaces**, fostering stronger community connections while embracing the transient nature of cities.

The document explores the significance of **urban voids** and **ephemerality** in contemporary architecture and urban planning, emphasizing the role of **temporary interventions** in revitalizing underutilized spaces. It highlights how informal interactions within these spaces can lead to transformation and community-driven development. **Placemaking** emerges as a key approach, focusing on human-centered urban design that fosters **social interaction, inclusivity, and cultural identity**. By repurposing underutilized areas with green spaces, public art, and recreational facilities, while ensuring **accessibility and safety**, cities can create more vibrant environments. Events, markets, and cultural

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V. CASE STUDY:

1. The **Red Planet**, designed by 100architects in 2017, is a 245 m² immersive open space located in Shanghai's bustling commercial district. This vibrant red intervention serves as an unconventional playground, fostering social interaction and enhancing the visitor experience in a privately owned public space. Strategically placed within a major shopping strip, it caters to both children and adults, featuring designated play and relaxation areas. By integrating with its surroundings, the installation attracts visitors, stimulates dialogue, and transforms urban space into a dynamic and engaging environment. The project exemplifies innovative placemaking, redefining public interaction in commercial urban landscapes. The Red Planet challenges traditional perceptions, immersing visitors in a vibrant red landscape that stimulates imagination and interaction. Designed with a surrealist basketball court, chalkboard pyramids, and an angled LED-lit basket, it encourages creative play and engagement. The installation features an athletic racetrack boundary, seating areas, and interactive elements for both children and adults. By seamlessly integrating with its urban surroundings, it transforms a commercial space into a communal hub, fostering social interaction and community engagement. This unique intervention not only enhances the public experience but also revitalizes the area, attracting foot traffic and enriching Shanghai's urban landscape.

2. **Hang Out** is a dynamic public space intervention in Pudong, Shanghai, designed by 100architects to foster social interaction and engagement across all age groups. Inspired by triangular crystal structures, the installation features a massive hexagonal tower divided into six smaller triangles, each offering a unique suspended experience. These include hanging sphere swings, hammock netting, a suspended picnic area, a pipe forest, and a suspended lounge, creating a playful and immersive environment. The Painted Scape on the floor not only enhances visual appeal but also attracts attention from passersby, residents, and nearby office workers. By merging painted shapes and grounded objects, the design extends beyond the structure itself, drawing visitors into an interactive and shareable space. This gravity-defying installation transforms an urban setting into an inviting, Instagrammable destination, encouraging relaxation, play, and social connections while redefining the way people experience public spaces.

3. **Ephemeral Village** in Montreal is a vibrant urban intervention designed by 100architects, revitalizing an underused neighborhood annually since 2014. This community-driven initiative fosters urban experimentation by engaging local architects, artists, and designers to create micro-architectural

installations. With a boardwalk-inspired layout, the space features interconnected pavilions that enhance public interaction. Visitors enter through Ferris, a 5m-high structure resembling a Ferris wheel base, leading to a sandy dune with wooden platforms. A movable primary stage, framed by lattice timber and mesh, hosts summer events. Mini-rail carriages commemorate Expo '67, while Mirador, a turquoise scaffolding tower, offers panoramic views of fireworks and city lights. The installation attracts a diverse audience, offering spaces for relaxation, entertainment, and creativity. As Montreal evolves, this initiative reflects the city's progressive spirit, encouraging unique, imaginative urban spaces that resonate with both residents and visitors.

COMPARATIVE ANALYSIS OF THE CASE STUDIES ON THE BASIS OF EMERGING PARAMETERS OF EPHEMERALITY:

This section involves comparing the above-mentioned case studies based on the emerging parameters of ephemerality. It aims to analyze and evaluate the similarities and differences among the cases concerning aspects such as circulation, lighting, interior details, landscape integration, adaptability, durability, aesthetics, technological advancements along with cultural identity, social interaction spaces, urban revitalization, and legacy impact.

	INTERACTIVITY	RED PLANET	HANGOUT	EPHEMERAL VILLAGE
Adaptive	An adaptable space swiftly caters to diverse activities, accommodating varied programs and versatile interior layouts.	Showcases adaptability through its versatile design, accommodating various activities for users of different ages and interests.	Features ball-swings, hammock nets, and a hanging picnic, fostering diverse social interactions and experiences for different user groups.	Annually renews itself, welcoming diverse designs and encouraging creativity, shaping a flexible space that evolves with each visit.
Experience	Integrating interactive tech into user experiences and physical settings shapes engagement, aiming for seamless interaction without creating hurdles.	Enriches user experiences by offering an unconventional playground with diverse features, encouraging imaginative play and social interaction in an immersive environment.	Enriches the user experience by offering an immersive and interactive public space, encouraging social engagement through its stimulating design.	Offers a rich, interactive experience, enticing diverse visitors with unique installations and activities, fostering a dynamic atmosphere.
Engagement	Engagement involves users interacting with an environment to challenge and reshape their experiences, fostering a mutually influential relationship between the user and the setting.	Serves as an immersive playground, bridging the gap between a commercial space and a community area, encouraging creative engagement among visitors.	Offers varied recreational options, ultimately engaging visitors of different ages and preferences.	Embodies engagement by encouraging a wide range of individuals to actively interpret and engage with its installations, fostering diverse interactions and imaginative involvement.

Table 1 Comparative Analysis of the Case Studies Based on the Parameter of Interactivity

Table 2 Comparative Analysis of the Case Studies Based on the Parameter of Form

FORM			RED PLANET	HANGOUT	EPHEMERAL VILLAGE
Circulation	Path-space relationship	The route design influences the space's shape and movement, guiding physical flow and creating rest spots.	Facilitates dynamic movement and exploration for an engaging experience.	Utilizes a hexagonal structure to guide movement and enhance spatial flow.	Facilitates seamless navigation between installations.
Lighting	Artificial	This parameter takes into account whether artificial lighting is used.	Primarily utilizes artificial lighting to enhance its atmosphere and visual appeal.	Primarily utilizes artificial lighting to enhance its atmosphere and visual appeal.	Primarily utilizes artificial lighting to enhance its atmosphere and visual appeal.
	Natural	This parameter takes into account whether natural lighting is used.	Utilizes natural light during daytime.	Utilizes natural light during daytime.	Utilizes natural light during daytime.
Interior Details	Open Plan / closed Plan	Considers layout openness or enclosure, shaping user experience.	Features an open-concept design for seamless circulation and interaction.	Features an open-concept design for seamless circulation and interaction.	Features an open-concept design for continuous circulation and interaction.
	Comfort	Evaluates a place's comfort based on furnishings, amenities, refreshments, accessibility, ventilation, and assistance.	N/A	N/A	Provides varied amenities, comfortable furnishings, and refreshment options strategically located throughout the space, enhancing accessibility
	Theme	Analyses the type of theme or concept that the environment elicits.	Breaking free from conventional perceptions, triggering imagination, and immersing visitors, in a colourful and surreal experience.	Inspired by crystal structures, a large hexagonal form with hanging features creates a suspended, interactive space.	A yearly community project turns urban space into a boardwalk-inspired playground with local talent.
Scale		The nature of this parameter is to examine the overall scale of a space	Overall scale is 250 m2	Overall scale is 750 m2	
Landscape		The site's surroundings and beyond enable the structure to seamlessly blend into its immediate environment.	Situated within a bustling commercial district in Shanghai. Consists of an open-air retail street, offering a vibrant and dynamic urban setting	Features a mix of urban developments and public spaces, in its immediate environment.	Incorporates a dynamic and interactive landscape, featuring innovative pavilions that contribute to an engaging urban environment.

Table 3 Comparative Analysis of the Case Studies Based on the Parameter of Material

MATERIALS		RED PLANET	HANGOUT	EPHEMERAL VILLAGE
Flexibility	Material selection depends on its design flexibility, including usability, deformation, and bending capabilities.	N/A	Utilizes lightweight metals, fabrics, and modular components for flexible spaces.	Uses wood, scaffolding, mesh, and imitation wagons for adaptability.
Durability	Selecting durable materials that resist rust, fatigue, climate, and damage.	Capable of withstanding varied activities and prolonged use within the installation.	Lightweight yet durable materials ensure longevity in adaptable structures.	Durable materials ensure structures endure reuse and environmental changes.
Aesthetics	Evaluating material by shape, form, composition, concept, and appearance.	Uses vibrant red shades for a striking monochromatic aesthetic.	Aesthetics create an immersive appeal with vibrant colors and engaging designs.	Enhance the village's appeal with vibrant colors and innovative designs.
Technological Advancement	Advanced materials outperform ordinary ones, offer wider applications, and reshape perceptions in various environments.	N/A	N/A	N/A

VI. CONCLUSION:

The evolution of ephemeral structures, particularly in pavilion design, traces a compelling journey from historical grandeur to contemporary innovation. Traditionally, pavilions symbolized opulence and served as elaborate settings for social gatherings. However, modern ephemeral pavilions have transformed into experimental and interactive spaces that challenge conventional design principles. This shift aligns closely with the concept of tactical urbanism, marking a dynamic rethinking of temporary architectural interventions within urban landscapes.

Historically, pavilions were standalone structures adorned with intricate architectural details and ornamental embellishments, often set within formal landscapes to host social events. These earlier designs prioritized aesthetic appeal and grandeur. In contrast, contemporary pavilions have evolved beyond mere decoration, becoming platforms for architectural experimentation. They incorporate cutting-edge materials, kinetic elements, and responsive technologies, offering immersive and dynamic experiences. Modern pavilions now serve diverse purposes, from temporary exhibitions to interactive art installations, redefining the role of ephemeral architecture.

The transformation of ephemeral pavilions reflects a broader departure from ornamentation

toward innovation. No longer confined to decorative roles, these structures leverage advanced materials, experiential design strategies, and interactive technologies to engage audiences in novel ways. They push architectural boundaries, creating captivating environments that foster public interaction. Within the framework of tactical urbanism—an approach focused on flexible, community-driven interventions in urban spaces—ephemeral pavilions become dynamic tools for revitalizing underutilized areas, injecting energy and functionality into the cityscape.

Tactical urbanism is centered on adaptable, citizen-led initiatives that rapidly transform overlooked urban spaces into vibrant communal hubs. The intersection of ephemeral pavilion design and tactical urbanism highlights their shared principles of adaptability, community participation, and human-centered urban experiences. Contemporary pavilions, with their interactive designs and kinetic facades, align seamlessly with the goals of tactical urbanism, offering temporary yet meaningful transformations that enhance urban vitality.

By integrating experiential design, kinetic materials, and smart technologies, these pavilions serve as catalysts for social engagement, cultural expression, and innovative urban interventions. Their transient nature not only challenges traditional architectural paradigms but also empowers cities to

evolve organically, fostering experimentation and collective participation. This convergence of ephemeral architecture and tactical urbanism underscores the profound potential of temporary structures in shaping urban environments.

In the realm of place making, the creation and activation of public spaces emphasize collaboration and community involvement. Ephemeral pavilions, with their adaptability and focus on engagement, contribute to meaningful urban experiences by strengthening connections between people, cultures, and spaces. Place making encourages active participation in shaping the built environment, fostering a sense of belonging and civic pride. The community-driven essence of placemaking aligns seamlessly with the principles of tactical urbanism and the transformative impact of ephemeral pavilion design.

Ultimately, the synergy between ephemerality, innovation, and tactical urbanism heralds a new frontier in architectural exploration. It highlights the fluidity and adaptability of urban spaces while redefining the significance of temporary structures in shaping modern cities. This integrated approach prioritizes human experiences, fosters community engagement, and embraces the evolving nature of urban life, paving the way for dynamic, inclusive, and creative urban practices.

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