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Spatial Influence on Form: Understanding How Space Shapes Architectural Expression

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Abstract — *This research explores how space influences the way architectural form is shaped. It looks at the idea that form is not only used to define space, but can also grow out of how space is used, experienced, and understood. The study includes both theory and real examples to show how spatial needs and perceptions guide design. It also looks at how people experience these spaces after they are built. The aim is to understand how architecture can express meaning by letting space lead the design process.*

Keywords — *Space, Influence, Form, Architecture Expression*

I. Introduction

Architecture is typically designed in response to existing conditions, which may be functional or influenced by social, political, or economic factors. These conditions are often seen as insufficient, and architecture aims to create improved alternatives through a design or problem-solving process [1]. This approach shaped the modernist style, where buildings prioritized function and avoided ornamentation [2]. The idea that design should be guided by purpose is reflected in the principle “form follows function.” However, what architects intend and what users actually experience can differ. A space may meet its function, yet users often engage with it in unexpected ways. Measuring the emotional and perceptual impact of architecture remains challenging due to personal, cultural, and aesthetic differences [3]. Today, architects seek a balance between form and function, expanding on Sullivan’s principle by using expressive forms that are both purposeful and engaging [4]. Still, even the most iconic modernist buildings occasionally depart from the strict application of this idea [5].

II. Objective of the study

- To understand the designer's perception.

- To educate the intended and perceived spatial experience of architectural expression.
- To analyse the development in form according to the spatial needs.

III. Methodology

The qualitative and quantitative methods were used in the spatial influence analysis. The literature review and case studies are presented in the study, and the two are contrasted in a balanced manner towards supporting the research.

Literature Study

1. Architects' Perception of Space during Design

The idea that form is shaped by space highlights the role of architectural design in responding to both function and user experience. Louis Sullivan’s Wainwright Building is a clear early example, where the vertical organization of space informed the building’s form. Later, architects like Gropius, Le Corbusier, and Mies van der Rohe expanded on this, designing with openness, clarity, and efficiency in mind, often removing decorative elements to let spatial planning guide form [6].



Fig. 1 3D visualization of Bloomberg Headquarters

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In today's practice, how users feel and move through a space has become central to design. Foster + Partners approach architecture as an experience shaped by spatial awareness and comfort [7]. Their Bloomberg Headquarters in London, for instance, was designed to promote intuitive movement and clarity through open floor plates and a central atrium [8]. After its completion, employees reported a strong sense of comfort, clarity, and connection in the space. The design not only supported daily function but also created a setting that encouraged well-being and collaboration

3. Theoretical and Critical Discussion on Space and Form

While form and space are closely connected, many argue that architectural experience cannot be reduced to function or visual clarity alone. Thinkers like Bachelard and Pallasmaa emphasize the emotional and sensory qualities of space, suggesting that architecture should respond to memory, feeling, and culture, not just performance or efficiency [10].

Case Studies:

1. Pompidou Centre, France

The Pompidou Centre is a landmark example of how spatial needs shape architectural form. Designed for flexibility, it features open interiors free from structural interruptions by externalizing structure, circulation, and mechanical systems. This "inside-out" approach kept the interior adaptable for various public uses.

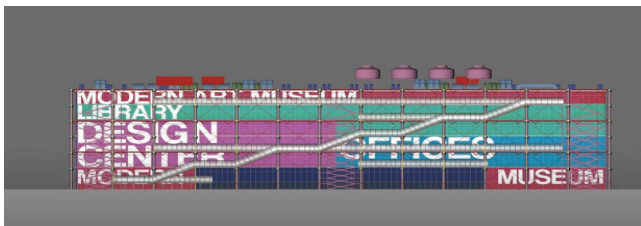


Fig. 2 Colour coding in Pompidou Centre

The open, column-free spaces let visitors move freely without barriers, creating an inviting environment. External escalators not only facilitated circulation but also offered unique city views, making the experience more engaging.

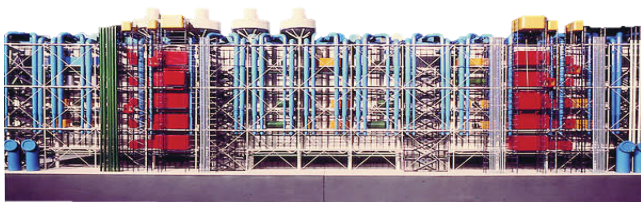


Fig. 3 Vertical Zoning



Fig. 4 Modern structure contrasting the Parisian fabric

At completion, the design was criticized for its industrial look and clash with historic surroundings, plus maintenance issues. Over time, it gained recognition as a bold, function-driven icon that challenged traditional design.



Fig. 5 Plaza space

2. The Baha, Sanepa

The design of Baha in Sanepa reflects the architects' clear spatial vision, where function, movement, and terrain guided the form. Retail units were placed along the roadside for visibility, while cafés and restaurants were tucked around an inner courtyard to create a calm, social core. The sloping site was used to create a stepped massing that feels grounded and human-scaled.

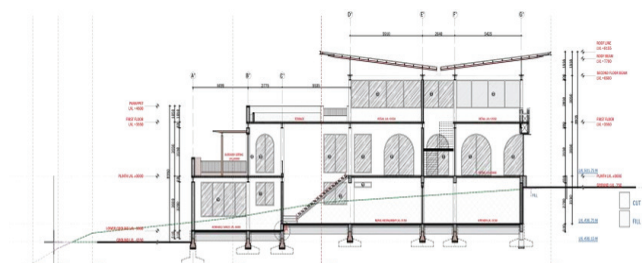


Fig. 6 Conceptual Section

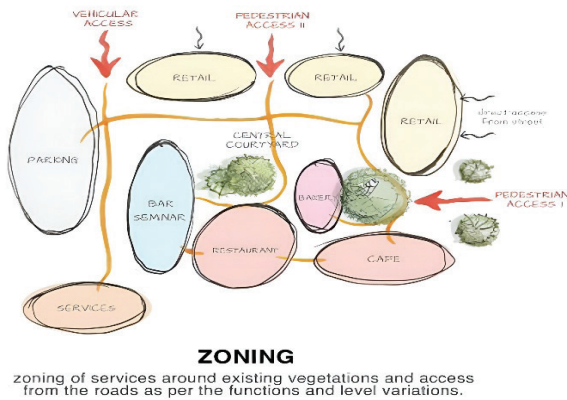


Fig. 7 Zoning of the Baha

Once built, users experienced BAHA as more than just a commercial space. The courtyard became a vibrant yet peaceful zone for gathering, dining, and pausing. The transition from busy street edge to quiet interior created a comfortable flow, while arched openings and layered volumes added openness and visual depth. The space supported both social activity and quiet retreat.

BAHA shows how thoughtful spatial design can shape user experience and place identity. Its layout promotes openness, comfort, and connection, offering a meaningful alternative to typical commercial developments by rooting the design in context and experience.



Fig. 8 3D visualization of The Baha

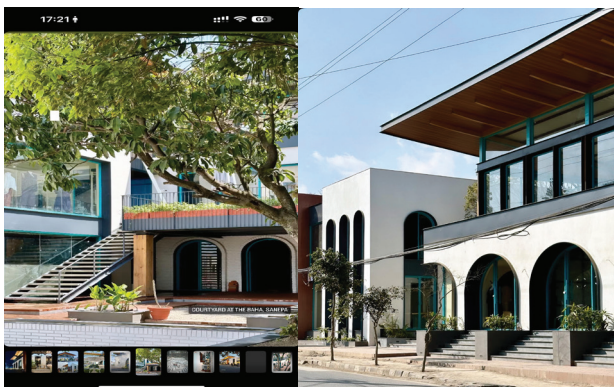


Fig. 9 Exterior and Inner Courtyard

IV. Analysis and Discussion

Table 1

The comparative study shaped by spatial requirement and user engagement

	Pompidou Centre, France	The Baha, Sanepa	Inference
Architects' Perception of Space during Design	Prioritized flexibility by externalizing structure and services, freeing up interiors for adaptable, uninterrupted cultural use.	Retail spaces placed along the road for visibility, while cafés/restaurants opened into a calm courtyard, blending function with timeless spatial intent.	Architects shaped form based on how they wanted space to function. Pompidou emphasized expressive openness, while Baha focused on inward calm and layered experience.
Users' Perceived Experience on Space Once It Is Built	Some viewed it as industrial or chaotic, while others appreciated for its openness and accessibility.	A fresh design approach drew users in, with a hidden green courtyard offering calm through human-scale proportions softening the contrast of new materials and form.	The way space is designed affects how people feel in it. Pompidou made users feel excited and curious with its open, exposed design, while The Baha made users feel calm and comfortable through its quiet, hidden courtyard.
Theoretical and Critical Discussion on Space and Form	Though initially criticized for its industrial contrast with historic surroundings, later stood out as a bold, function driven design.	Despite innovation, the hidden courtyard caused the space to be misread as a simple retail zone.	Spatial design influences the way a form is understood. Pompidou's bold design drew focus, while Baha's restrained form resulted in less attention.

the comparative study illustrates that architectural form is significantly shaped by spatial requirements and user engagement. In both international and national contexts, space acts as the primary driver of design decisions. The Pompidou Centre demonstrates this through a bold, expressive approach, externalizing structural and service elements to maximize interior flexibility. In contrast, the Baha at Sanepa adopts a more grounded strategy, allowing spatial zoning and site topography to define its form and flow.

Literature findings further support the idea that space is not only functional but also emotional and sensory. The perception of space by users often extends beyond its intended use, emphasizing the importance of atmosphere, movement, and memory in shaping meaningful architecture.

V. Conclusion

The study concludes that successful architectural expression arises when form responds directly to spatial needs and user experience. Whether through iconic gestures or contextual integration, buildings must balance functional demands with human-centered design. Ultimately, architecture is most impactful when it reflects both the practical requirements of space and the intangible qualities that make places memorable and engaging.

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