THE INTERMEDIATE LAYER IN FAÇADES

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ABSTRACT

Intermediate spaces in architecture play a pivotal role in mediating between the interior and exterior environments, offering functionality beyond a mere partition. The façade, traditionally conceived as a protective barrier, shields the interior from external factors such as the climate. Nonetheless, this boundary can evolve into a transitional zone that serves as both a spatial and climatic regulator. By rethinking the façade into an intermediate layer, architecture creates a buffer that moderates temperatures, warming interiors during winter and cooling them during summer, thereby enhancing energy efficiency and occupant comfort.

The concept of intermediate spaces aligns with the themes explored in the Slovenian pavilion at the Venice Biennale. This exhibition highlights the significance of incorporating in-between spaces to enhance the thermal balance approach in several vernacular European architectural designs. In addition, the author of this study analysed historical architectural solutions that illustrate the response to local climate and needs, reinforcing their dual role as protective and interactive layers.

This study is part of the research development and highlights the significance of these in-between layers as essential elements in creating sustainable and adaptable architecture. The primary objective of this paper is to examine the proposed architectural solutions for intermediate spaces in several examples from different cities. The thesis seeks to understand and explain the contemporary role of these spaces in the façades and confirms its relevance with environmental considerations and human needs.

KEYWORDS _ *Interior Design, Intermediate spaces, built-in furniture, domestic spaces, covered open spaces*

INTRODUCTION

The central thesis of this paper is the importance of the in-between spaces in contemporary architecture. To explore this, the study analyses the condition of the intermediate layers and the elements that define them. The research examines their role within the buildings, identifying key characteristics and potential variations. The specific objective is to contribute to ongoing research and develop a deeper understanding of the components through the review of various architectural projects that incorporate this concept in their design.

The exploration of the interior-exterior transitional spaces has been a topic of interest since the late 19th century, when technological advances enabled the separation between load-bearing structure and façades. During the modernist movement, architects began to experiment with new spatial configurations, redefining the relationship between interior and exterior. They transformed the transition between indoors and outdoors into a deliberate design field, creating spaces that blurred boundaries and facilitated connections with the surrounding environment. However, in the 21st century, in-between spaces have evolved to support new modes of habitation. They now colonize façades and serve as shared meeting places, offering access and enjoyment beyond private use. These spaces have become crucial elements in the collective life of buildings.

This study set out to explore the influence of the intermediate spaces on passive architecture design strategies. Additionally, this paper investigates the impact on occupants' experiences and well-being.

Contemporary source material - including literature and the analyses of architectural projects from the past fifty years is used to examine the significance of in-between space in architecture and contributes to the development of a theoretical framework. The paper begins by defining the concept of intermediate space in architecture. This approach establishes a reference framework for understanding transitional spaces between interior and exterior, with an overview of their forms, locations, and relationships to the building. It will then go on to analyse the in-between space from three perspectives: in-between spaces as a social element, as a greenspace, and as a linking component that connects architecture with its specific context.

This work emerges from the need to establish criteria that allow the reading, understanding, analysing, and critiquing of intermediate spaces as a means of connecting architectural objects with their sites and enhancing the well-being of their users.

It is hoped that the results of this research will serve as a reference for teachers and students as a guide in architectural design studios. From a scientific point of view, it aims to provide a foundation for research, discussions, and proposals in the field of academic and professional architectural practice.

BACKGROUND

The Author's interest in intermediate architectural spaces originated during early academic studies in architecture, particularly through the introduction of the concept of in-between spaces used by the Uruguayan architect Mario Payssé Reyes. This initial exposure was later deepened by examining the works of Le Corbusier and Mies van der Rohe. Subsequent professional experience in architectural practice further reinforced this interest and laid the foundation for the present research.

This study builds upon a previous investigation that examined interior space and its relationship with the building envelope and built-in furniture, as presented in Layers of Interior Architecture (Ramos Gonzalez, N., 2023). In that work, the façade functioned as a central point of reference, focusing on internal spatial configuration. In contrast, the current research shifts attention to the exterior spaces adjacent to the façade, continuing the exploration of architectural layers from a new complementary perspective.

METHODOLOGY

The study adopts a qualitative and comparative approach in the analysis of architecture. A selection of contemporary and historical architectural projects was analysed through spatial diagrams, sections, and plans to identify the use, configuration, and function of intermediate spaces. The projects were selected based on their documented emphasis on transitional spaces within façades, with geographic diversity including case studies from Europe and South America. The selection criteria included climatic responsiveness, social engagement, and the innovative use of green and communal areas in façades design.

To complement the visual and spatial analysis, the study also employed content analysis of architectural text and lectures by architects whose work centres around façade transformation and intermediate zones. Additionally, architectural studio outcomes from university coursework were reviewed to evaluate how emerging designers explore the theme of flexible boundaries. The triangulation of academic literature, professional case studies, and pedagogical experiments allowed for the construction of a theoretical framework that connects the physical, social, and symbolic dimensions of in-between spaces.

RESULTS AND DISCUSSIONS

The greater part of the literature on intermediate spaces focuses on modern architecture. However, this research aims to analyse these spaces concerning contemporary architectural projects and the current challenges faced by architects and researchers. This observation supports the hypothesis that in-between spaces can address social interactions, incorporate greenery, regulate interior thermal conditions, and create meaningful connections between architecture and its context.

What is the Role of the Intermediate Space?

Commenting on the purpose of architecture, Norberg-Schulz (1966) emphasises that "Architecture, therefore, is a practical 'tool' and (…) still contributes to order our environment." He distinguishes architecture as a regulator of human relationships with the environment, which goes beyond purely functional concerns to acquire cultural significance, making it part of a society's identity. When applying this concept to the in-between spaces, two territories -interior and exterior- can be identified, and the need to control and mediate the contact between them becomes evident. Three dimensions -functional, physical, and symbolic- emerged to justify the appearance and development of intermediate spaces in architecture.

Functional Aspect

The location of intermediate space within a building is closely linked to its functional role. The habitable boundary can serve as an entry point, an extension of interior space into the outdoors, a circulation path parallel to the envelope, or a connector between distinct spaces. It may also support recreational use, offering opportunities for pause, interaction, or transition.

Physical Perspective

From a physical perspective, the intermediate spaces contribute to thermal regulation, light modulation, and acoustic buffering. Suárez (2014) emphasizes the importance of using intermediate zones to mediate environmental conditions, thereby adapting them to human activities taking place inside the building. This not only enhances comfort but also encourages new types of architectural use.

Symbolic Facet

To conclude this part, the literature identifies the symbolic facet of intermediate space to the cultural

and historical values of a society, which influence architectural thinking and practice. In-between spaces are the outward projection of interior life- they reflect how people inhabit their environments. Elements such as verandas, terraces, balconies, corridors, and patios form a repertoire of spatial conditions that express ways of living. These traditional features must be revisited and adapted to contemporary needs, particularly those that seek a deeper connection with the environment and community. The figure below illustrates some of the spatial schemes analyzed in this study.

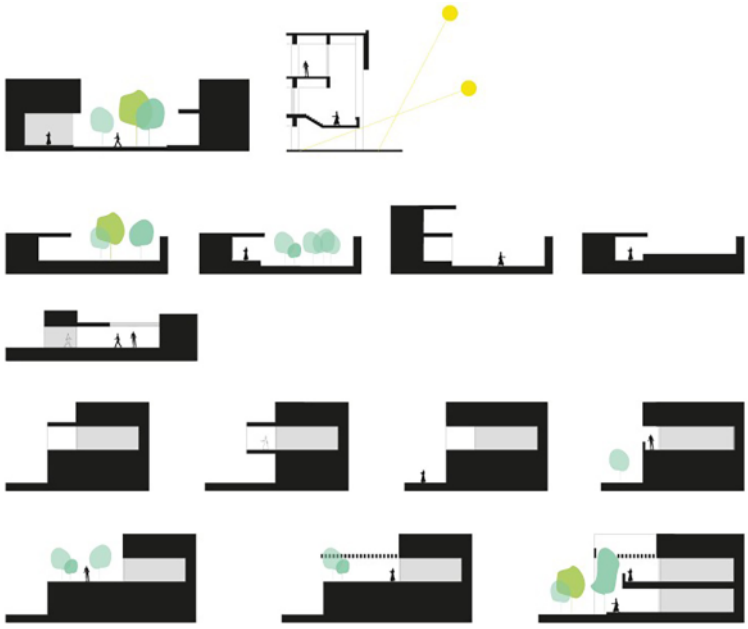

Figure 1: Intermediate spaces schemes (above: urban scale scheme, second line: patio and entrance scheme, middle below: balconies schemes, and below: terraces schemes)

In-between space as a social element

In-between spaces, such as balconies, terraces, patios, transitional corridors, or even squares -on an urban scale- have evolved beyond their traditional architectural functions to become social spaces within contemporary urban living. Richard Scoffier (2023), in his lecture "Le Balcon" at Arsenal Pavilion, emphasizes that balconies, for example, are not merely extensions of interior spaces but are "other spaces" that foster the imagination and social interactions. He notes that during periods of confinement, such as the recent pandemic, these spaces reemerged as essential spaces for communal engagement, allowing residents to connect with their environment and neighbours while maintaining physical distance was required.

This perspective aligns with the works of architects like Glenda Kapstein Lomboy and Ramón Vázquez Molezún, who have explored the social dimensions of intermediate spaces. Their projects often incorporate semi-open areas that serve as communal gathering points, blurring the lines between private and public domains.

Perhaps the most interesting project that aligns with the development of a social-community intermediate space is the Panache tower designed by Édouard François in Grenoble, France, in 2018. As shown in Figure 2, the section and elevation of the building, the architect has created on the roof of the tower a public space separated from the dwellings. The flats do not have balconies, instead, the designer created the terraces on the top floors.



Figure 2: Panache tower (left: elevation and right: section) – Retrieved from: https://www.edouardfrancois.com/projects/panache

In-between greenspaces

The integration of vegetation within architectural intermediate spaces is not merely an aesthetic gesture but a pivotal strategy for enhancing ecological, psychological, and climatic performance in built environments. These green transitional zones, balconies, terraces, loggias, or vegetated corridors, serve as micro-ecological systems that blur the line between architecture and nature, reinforcing a symbiotic relationship between human habitation and environmental administration.

Sou Fujimoto's "L'Arbre Blanc" in Montpellier stands out as a particularly evocative example. The architect reconceptualizes the dwelling unit as a support system for the garden-like terrace. Here, vegetation is not ornamental but functional; it provides shade, fosters biodiversity, and offers visual and psychological relief. The architecture treats the façade as a fertile surface rather than a sealed boundary.

These types of in-between green spaces offer several environmental and human-centered benefits. For example, passive climate control where plants on facades and terraces act as insulation buffers, reducing solar gain in summer while allowing controlled permeability in colder months. They help to stabilize internal temperatures and reduce energy demands for heating and cooling. Another example of these benefits is urban biodiversity by supporting plant life and sometimes attracting birds and pollinators, these spaces turn the facades into vertical landscapes. Finally, these spaces allow users to shape their micro-environments. From potted plants to mini gardens, they become an expression of lifestyle and identity, connecting private routines with shared visual and ecological narratives in the public realm.

In sum, in-between green spaces challenge the rigid dichotomy of interior-exterior. They propose instead a continuous gradient of experience and function, where ecology, architecture, and everyday life intersect meaningfully. They reinforce the façade as a site of dynamic interaction rather than static enclosure.

The intermediate indoor-outdoor space is a linking component that connects architecture with its specific context.

Intermediate spaces act as crucial connectors between built environments and their surrounding contexts, facilitating a dialogue between architecture and place. In the works of Mario Payssé Reyes, this linking function is evident through the use of local materials, spatial configurations, and orientation that respond to local conditions. Their designs often incorporate elements such as

pergolas, shaded walkways, and open-air galleries that mediate between interior spaces and external landscape, fostering a sense of continuity and belonging.

One of the most tangible ways these spaces link architecture to context is through climatic responsiveness. In regions with intense sun, wind, or rain, intermediate spaces are strategically designed to manage exposure and comfort. For example, deep balconies in tropical climates provide shade and reduce direct solar gain, while open-air atriums in dry zones enhance cross ventilation and evaporative cooling.

Summarizing, intermediate indoor-outdoor spaces are structurally and symbolically essential. They translate environmental conditions, cultural patterns, and spatial qualities into architectural form. By doing so, they transform the façade from a passive boundary into an active, responsive, and expressive layer that links architecture with its context.

CONCLUSIONS

The in-between space as a strategy and subject of study of architectural design

This paper has shown that intermediate spaces are not peripheral components of architecture but central, dynamic layers that mediate between building, user, and environment. Across all the dimensions -social, environmental, and contextual- these spaces operate as spatial and cultural interfaces. They embody contemporary architectural concerns: climate adaptation, community engagement, and the search for identity and meaning within urban life.

Analysing diverse case studies, from communal rooftop terraces to vertical gardens, reveals how these transitional zones facilitate climate moderation, enhance user comfort, and foster social cohesion. Projects such as “L’Arbre Blanc” and Panache Tower illustrate how rethinking facades as habitable, green, or communal spaces redefines the relationship between buildings and their users. These examples highlight how in-between spaces layers serve as spaces of encounter, negotiation, and creativity, responding to the growing need for architecture to support both environmental responsibility and emotional well-being.

Moreover, this research has emphasized the value of intermediate spaces as pedagogical tools. Through academic design studios, students reimagined facades not as edges but as living membranes, experimenting with spatial strategies that promote dialogue between the private and the public, the built and the natural. Some of these courses are Design Studio 4 and Landscape Design, which challenged students to reinterpret the façade not as a static boundary, but as an active, habitable layer that could mediate between privacy and openness, climate and comfort, and architecture and its surroundings. Through model-making, spatial diagrams, and iterative design processes, students experimented with new ways to inhabit thresholds, transforming them into spaces of encounter, rest, and play.

In conclusion, the intermediate space must be reclaimed as a critical aspect of architectural design. It should be seen not only as a response to environmental and social imperatives but also as a creative opportunity to express identity, context, and human experience. As architecture continues to adapt to resilience and a framework for innovation, this paper adds to a growing body of research that seeks to define, interpret, and apply intermediate spaces as key agents in the design of sustainable, meaningful, and connected architecture.

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