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Reinterpreting architectural precedents: The enduring relevance and transformative capacity of Villa Savoye's design principles

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Abstract
This paper examines the evolving role of architectural precedents, focusing on Le Corbusier's Villa Savoye, and emphasizes their continued relevance and transformative capacity within architectural design culture. It illustrates how engagement with precedents influences their reinterpretation and adaptation in changing contexts. Villa Savoye, a defining example of Modern Architecture, gained renewed attention during the COVID-19 pandemic, particularly through its freestanding washbasin at the entrance. This feature suggested a transitional, hygienic space addressing emerging concerns about sanitization upon returning home. Such recognition highlights how precedents can acquire new meaning when viewed through altered perspectives. Building on the idea that precedents like Villa Savoye offer fresh insights as inquiries evolve, this paper extends discourse on precedent and design. It explores the project's continued relevance to contemporary architecture, emphasizing adaptability of its design principles. The study assesses the lasting impact of these principles—pilotis, open plan, roof garden, horizontal windows, free façade, and architectural promenade—on both Le Corbusier's later works and contemporary practices. Through an interpretive-historical methodology, the research integrates primary sources and theoretical critiques to illustrate how evolving perspectives shape the relationship between precedent and design. Comparative analyses examine reinterpretations of these principles in Le Corbusier's later works and contemporary architecture. Ultimately, this study contributes to architectural literature by framing precedents as dynamic resources that facilitate meaningful dialogue between past and present. It emphasizes their capacity to revitalize architectural culture, generating continuous insights in response to evolving challenges.

Keywords
Architectural precedents, COVID-19, Design principles, Le Corbusier, Villa Savoye.

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1. Introduction

> The only true voyage of discovery… would be not to visit new lands but to possess new eyes… [1]
>
> -Marcel Proust, *In Search of Lost Time, Volume V: The Captive*

Precedents, or preceding examples, are foundational to the history of architecture, shaping its trajectory by offering historical solutions to past challenges. They are integral to the cultural framework of the discipline, encapsulating its continuity and evolution. However, as architecture undergoes profound transformations driven by digitalization, technological advancements, and changing needs, the relationship between precedents and contemporary design has become increasingly complex. Architects today face the challenge of reconciling the rich reservoir of historical knowledge with the demands of a rapidly evolving landscape, where new tools, materials, and techniques redefine the boundaries of possibility.

Digital technologies, particularly advancements in artificial intelligence, robotics, and computational design, are fundamentally reshaping architectural practice. As Randy Deutsch (2019) observes, these tools demand that architects redefine their roles, moving beyond traditional practices to embrace innovation and interdisciplinary collaboration. This shift is emblematic of the Fourth Industrial Revolution, a period characterized by accelerated technological change that disrupts established workflows and professional identities (Aksamija, 2016; Menges, 2015). While these innovations promise unprecedented opportunities for creativity and efficiency, they also raise critical questions about the relevance of historical precedents in addressing contemporary challenges. David Celanto's (2007) assertion that architects' future relevance depends on embracing new technologies underscores this dilemma, suggesting that the paradigm shift created by these tools will marginalize design techniques of the past. The effort to adapt to ever-changing conditions seems to weaken the relation between past and present and break the bond that architecture can constitute with precedents. Within this view past examples cannot be related to current design parameters, and precedents are regarded as specific solutions to a specific design problem in a historical context.

The growing gap between design knowledge and precedent is a critical issue in architecture, particularly in architectural education. On one hand, there is the accumulated knowledge that forms architectural culture—a tradition rich with valuable solutions. On the other hand, contemporary circumstances sometimes render these precedents seemingly irrelevant. This raises fundamental questions: How can architects maintain an active relationship with precedents in such a rapidly evolving landscape? How can precedents, as repositories of historical knowledge, continue to inform contemporary design processes?

This paper posits that architectural precedents are not static artifacts of the past but dynamic resources, whose relevance evolves through reinterpretation as they are viewed through the lens of contemporary challenges. Villa Savoye, a seminal work by Le Corbusier, exemplifies this adaptability. While long regarded as a symbol of Modern Architecture, Villa Savoye's freestanding washbasin in the entrance gained renewed significance during the COVID-19 pandemic. Designed nearly a century ago, this feature anticipated contemporary concerns about hygiene and sanitation, transforming from an aesthetic symbol of modernity into a practical design solution. By spatializing hygiene as part of the entry sequence, Le Corbusier prefigured a concern that became central nearly a century later, underscoring the enduring relevance of his design principles.

The study extends the discussion concerning precedent and design by recognizing that precedents like Villa Savoye continue to provide new answers as our inquiries evolve. Specifically, the study investigates how Villa Savoye's design principles—pilotis, open plan, roof garden, horizontal windows, free façade, and architectural promenade—have been transformed and applied in other Le Corbusier buildings and contemporary architectural projects, revealing both continuities and disruptions in architectural

design culture. By examining these transformations, the study contributes to a nuanced understanding of precedents as enduring and viable works of architecture, demonstrating their relevance beyond historical context and offering valuable insights into contemporary practice.

The paper is organized into three parts. The first part revisits the relationship between precedents and design informed by the perspectives of Colin Rowe, Alberto Pérez-Gómez, and David Rifkind. The second part examines how our interaction with precedents evolved during the COVID-19 quarantine, using Villa Savoye's wash basin as an example, supported by Beatriz Colomina's insights on modern architecture and health. The final part expands on Villa Savoye's relevance by analyzing how its design principles have been adapted in other Le Corbusier works and contemporary projects, identifying continuities and changes in architectural design culture.

The research employs an interpretive-historical methodology, which serves both as a research tool and a theoretical framework to examine the dynamic relationship between architectural precedents and contemporary design. By drawing on primary sources like original drawings and photographs, as well as secondary sources such as theoretical critiques and architectural studies, the research offers a thorough analysis of Villa Savoye's enduring influence. It additionally employs comparative analysis to explore the transformation of key design elements by juxtaposing them with their reinterpretations in contemporary projects, accompanied by a visual comparative table.

The study aims to contribute to architectural literature by demonstrating how historical design knowledge can be adapted to meet contemporary needs, positioning precedents as dynamic resources that stimulates a meaningful dialogue between past and present. It emphasizes the potential of precedents to enrich architectural culture by continuously regenerating historical insights in response to evolving challenges.

2. Precedent and design relationship: Constructive frameworks

While the questions regarding the relevance of precedents in contemporary architectural practice are central to this study, they are not entirely new. This ongoing tension between preserving architectural traditions and embracing new design paradigms reflects broader debates on modernity and the role of precedent in design thinking, which have been extensively explored in architectural theory. As Heynen (1999) articulates in *Architecture and Modernity*, the concept of modernity, originating in the 17th century, embodies a perspective on life marked by continuous evolution and change, directed toward a future increasingly divergent from both the past and the present. The innovation-driven ethos of modernity, which sought a departure from tradition, persists today, complicating our connection with the past and raising the question of how precedents can meaningfully contribute to design thinking in a contemporary context.

The 1986 *Harvard Review* special issue, *Precedent and Invention,* is noteworthy not only for the enduring question it raises but also for the response it elicited from architectural historian Colin Rowe in a letter to the editor. In the introductory remarks of the issue, Editors (1986) note that precedents have become tools for copying in a pluralistic architectural environment, where anything can inspire design. They question whether this merely visually-based relationship adds value to design thinking, and they highlight the core issue as the dichotomy between "precedent" (historical and traditional) and "invention" (new and extraordinary). The editors suggest that for precedents to contribute meaningfully, one must transcend this dichotomy through a holistic, synthetic approach.

2.1. Colin Rowe and his paradigmatic perspective on architectural precedents

In his "Letter to the Editors," published in the same issue, Colin Rowe argues that precedent and invention are not opposites, but two interconnected

aspects of the same process. He asserts that questioning the role of precedents is unnecessary, as they are essential to all fields, providing continuity in knowledge and culture. Rowe draws on Aristotle's notion that human learning through "imitation" distinguishes us from animals, with imitations evolving into precedents that bind society together (Rowe, 1986, p. 188).

Rowe illustrates the significance of precedents through law and chess. In law, precedents form the foundation of societal continuity, management, and sustainability. Weddle and Neveu (2011) explain that legal precedents, drawn from prior cases, serve as references for future decisions, establishing a decision-making system within historical continuity. While precedents can be binding and authoritative, their use is not dogmatic; critical analysis allows flexibility, enabling new decisions and the transformation of legal knowledge. Similarly, in chess, Lawson (2004, p. 448) notes that master players study and incorporate past games into their repertoire to anticipate opponents' moves and lead the game. The knowledge of precedent enables quick analysis and strategy, giving players an advantage over amateurs. However, to win against another master, this knowledge must be used creatively, with unexpected moves that surprise the opponent.

According to Rowe (1986, p. 189), the concepts of precedent and invention are not mutually exclusive but rather two sides of the same coin. The correct question to ask is, "How does the new invade the old and how does the old invade the new?" rather than the pointless effort of challenging the relevance of precedent. With this question, Rowe suggests a dynamic relationship and mutual transformation between today and the past. The act of "invasion" signals a sophisticated process that is more than a mechanically done copy-and-paste action. By this act, Rowe wants to leave behind problematizing precedent-design relationship itself but instead move on to the operative aspect of this relationship.

This reciprocal and dynamic bond that Rowe refers to can be found in his well-known 1947 essay, "The Mathematics of the Ideal Villa," which demonstrates a relationship that transcends time between Palladio's Villa Malcentonta and Le Corbusier's Villa Stein. Rowe's formal comparison of these seemingly disparate buildings, based on their similar volumetric structures and grid proportions (8x5x5 units in size and a 2-1-2-1-2 horizontal grid), reshaped perceptions of both architects. Hildner (1999, p. 147) notes that the Villa Stein's grid reflects a classical Greek mathematical paradigm, while Sherer (2004) argues that Rowe's comparison highlighted modernism's links to Classical norms it sought to transcend.

2.2. Engaging architectural precedents: Hermeneutic interpretation and creative misreading

To explore approaches that view precedents as a rich source of architectural ideas, capable of illuminating contemporary practice, the *Journal of Architectural Education* published a special issue titled *"Beyond Precedent"* in 2011. This issue focuses on methods for rethinking and revitalizing the relationship between precedent and design. Building on Colin Rowe's foundational inquiry into the interplay of precedent and invention, contributors such as Alberto Pérez-Gómez and David Rifkind extend this conversation. Pérez-Gómez employs a hermeneutic philosophical lens, while Rifkind adopts a strategic approach to precedents, each offering nuanced perspectives on how the past can meaningfully shape the present.

Alberto Pérez-Gómez (Weddle et al., 2011) critiques methodologies that treat architectural precedents solely as historical artifacts, reducing them to formal categorizations based on stylistic attributes. He argues that viewing architectural history as the history of buildings, a 19th-century approach, confines precedents to typologies and styles, as exemplified by Jean-Nicolas-Louis Durand in *Précis of the Lectures on Architecture* (1802). Pérez-Gómez asserts that this limited understanding persists today, hindering precedents from informing contemporary design. He proposes

an interpretive approach to historical material, one that engages in dynamic dialogue with current design challenges. This dialogue, according to Pérez-Gómez, is facilitated by modern hermeneutical frameworks, as articulated by philosophers such as Hans-Georg Gadamer and Paul Ricoeur. In these frameworks, interpretation and engagement with contemporary questions are prioritized, allowing for ahistorical parallels between the past and present. Gadamer's concept of the "fusion of horizons" is applied to bridge the gap between past and present, acknowledging that while historical experiences cannot be fully recreated, the inquiries of the past remain relevant to present concerns. Without this perspective, history becomes a mere remnant of past events (Weddle et al., 2011, p. 78).

Gómez proposes hermeneutics as a philosophical framework for exploring and analyzing architectural precedents, while David Rifkind (2011) introduces the concept of "misprision" as a strategy for creatively misreading architectural precedents. Derived from Harold Bloom's literary theory, misprision involves a critical reinterpretation of a work, transforming the precedent in a way that generates something new, while maintaining its reference. Although initially a literary concept, Rifkind argues that misprision has already been integrated into architectural culture as a design strategy. Similar to Rowe's notion of "the invasion of old by the new" and "the invasion of the new by the old," misprision involves revising and completing the precursor work. Rifkind references the Parthenon, Villa Savoye, and Casa del Fascio as examples where creative reinterpretation through misprision transforms each precedent. In a similar vein, Peter Eisenman's House II project is a creative reading of Giuseppe Terragni's Casa del Fascio (Rifkind, 2011, p. 510).

Echoing Gómez's emphasis on the role of "interpretation" as the foundational mechanism for learning from precedents, Rifkind introduces it as the adhesive that binds together artistic culture. Similarly, every architectural work represents an act of interpretation. Through this process, precedents inject novel meanings into new projects and establish a bridge to the future. The seminal contribution offered by Colin Rowe, Alberto Pérez-Gómez, and David Rifkind is their viewpoint of precedents as integral elements of an active and critical act of interpretation. The questions posed to the precedents and how the dialogue is maintained establish the character of that relationship. As the nature of inquiries posed to them changes, their responses are likely to vary.

3. Pandemic shifts: The recognition of the washbasin in Villa Savoye and the resonance of Colomina's re-reading of Modern Architecture

In the context of the COVID-19 pandemic, the unfolding of the circumstance outlined above—where the response from precedents could change with altered perspectives—was observed. In the early stages of the pandemic, which commenced in early 2020, a radical change was felt in both our way of life and our perspective on life, with the primary concern being the avoidance of illness. We had a moment to reflect on our priorities and connections to other people, the environment, and ideas during this period. Throughout the lockdown, when we were confined to our homes, our relationship with the spaces we inhabited deepened, prompting a reconsideration of the role of architecture. Issues like style, aesthetic appeal, and technical admiration faded into the background. Instead, the adaptability of spaces to our lifestyles and fundamental needs, such as natural light, natural ventilation, open space, and environmental sensitivity, emerged as essential requirements. This period, marked by a heightened awareness of the impact of space on our mental and physical well-being, also renewed the relationship we had with architectural precedents and the questions posed to them. The Villa Savoye reminded of itself in such a state of mind. However, this time, it reminded itself not as an iconic project of the always-known Modern Architecture style, but with the free-standing washbasin in the entrance area (Figure 1).

The washbasin, which welcomes the occupants at the entrance and allows them to wash their hands before entering the upper floor, has never been so meaningful. Le Corbusier gave a solution to this issue about a century ago, a long time before we developed the compulsive urge to wash our hands as soon as we enter our homes. This washbasin provides the entrance area the identity of a buffer zone which offers a transitional and hygiene area where one can clean up before entering the private areas of the house. Here, a scenario is developed where sanitation is spatialized in between the spaces on the upper floor and the outer world. The tendency to view architecture and space in terms of its relationship with hygiene and health, and to examine this relationship in the past, suddenly revealed the idea that this washbasin represented. Here, it is important to note that the washbasin, once neglected or seen merely as an aesthetic symbol of modernity, gains renewed significance due to the altered perspective we developed during the COVID-19 quarantine. This shift allows us to recognize that Villa Savoye still offers relevant answers.

The perspective that spontaneously emerged during the pandemic period and saw the connections between the precedents and human health was one that Beatriz Colomina had fully expressed in her book "X-Ray Architecture" (2019) written before the COVID-19 pandemic. It is essential to reference this work to understand the historical context and design ethos of the washbasin at the entrance of Villa Savoye, and to highlight how previously created works can acquire new meaning when approached differently.

In her book, Colomina reinterprets modern architecture in relation to health, humanity, and wellness, arguing that the Modern Architecture Movement is not merely a style or aesthetic trend driven by scientific and technological advancements, but an architectural ideology focused on the mental and physical well-being of individuals. Referring to the global tuberculosis pandemic at the turn of the 20th century, Colomina suggests that modern architecture emerged as a form of architectural research aimed at preventing and treating the disease. In cities with poorly ventilated, sunless indoor spaces, which contributed to the spread of tuberculosis, key factors such as sunlight, hygiene, fresh air, and physical activity were believed to prevent and treat the illness. According to Colomina, the pursuit of spatial solutions that addressed these factors was a primary motivation for modern architecture. She dedicates significant attention to Le Corbusier's urban and architectural ideas, emphasizing that his work, driven by the connection between health and space, should be understood as "medical devices" rather than mere stylistic expressions (2019, p. 22).

With this discussion put forward by Colomina, it is clear that the Villa Savoye's washbasin, which acquired significance with the pandemic period, is not merely an example of sanitary aesthetics but also the result of a design philosophy that draws its inspiration

Figure 1. *Washbasin in the entrance area of Villa Savoye. (Kozlowski, n.d.) © FLC / ADAGP.*

from life and human well-being. Colomina separates Modern Architecture from its much-discussed stylistic features and reconstructs it comprehensively with its relationship with health, enabling us to recognize and question the conventions in the way we read and perceive the past. This book is a strong representation of the various levels of dialogue that can be established with precedents since it tells, from another point of view, the story of reinventing an architectural approach that has been debated for decades.

4. Evolution of principles: Tracing Villa Savoye's influence on contemporary design culture

The perspective offered by the COVID-19 pandemic, along with Colomina's reading, has revealed Villa Savoye's capacity to address contemporary challenges by freeing it from its historical context, thereby challenging the notion that it is merely a symbolic building. Villa Savoye, built between 1929-31, offers other features that might broaden and further the discussion on the relationship between precedent and design culture. The uniqueness of the project, which is regarded as the symbol of Modern Architecture, can surely be attributed to the diagrammatic power of its design ideas as well as the potential of the architectural vocabulary to be sustained afterward. It occupies a critical position between the architecture that preceded it and the architectural design knowledge that has survived to the present day. The project is the embodiment of both the architectural tradition that came before it, and the principles that Le Corbusier developed and tested in several endeavors beginning with the L'Esprit Nouveau era (1920-1925). The pilotis, roof garden, open-plan design, horizontal windows, and free façade design are all key features of Villa Savoye, embodying the 'five points of a new architecture' that Le Corbusier developed in the 1920s as the core principles of the Modernist movement (Le Corbusier, 1929) [2].

The "five principles of the new architecture" embodied Modern Architecture's enduring ambition to break away from historical architectural styles, an aspiration initially encouraged by Eugène Viollet-le-Duc in *Entretiens sur l'Architecture* (1872). While these principles might initially appear to introduce an entirely novel architectural language detached from the past, they were not driven purely by aesthetic considerations. Instead, they emerged from extensive spatial and structural research grounded in a detailed analysis of preceding architectural forms. The principles not only explored the limitations of traditional load-bearing systems but also offered insights into the language of Classical Architecture. Moreover, they demonstrated how the innovative use of reinforced concrete could transcend these constraints, enabling new spatial possibilities. Le Corbusier's depiction of the five principles in his sketches highlights how each principle engages with the spatial limitations of traditional load-bearing systems and is transformed by the opportunities presented through the reinforced concrete system (Figure 2). Liberation from load-bearing walls granted the freedom to conceive open plans, while the scope expanded to include flat roofs usable as roof gardens, in contrast to the traditional pitched roofs. Structural innovation even allowed facades to break free from vertical elements through cantilevers. The shift from narrow and vertically oriented windows placed within load-bearing walls to horizontal windows spanning between columns with increased widths became attainable (Colquhoun, 1985).

Le Corbusier's articulation of these principles exemplifies the possibility of being revolutionary while preserving historical continuity, transforming prior architectural forms without directly imitating them. In relation to the questions raised in the 1986 *Harvard Review* special issue *Precedent and Innovation*, the Five Principles demonstrate how the seemingly opposing concepts of "precedent" and "innovation" can be reconciled within the creative process. This reconciliation is achieved by subjecting precedents to critical analysis and interpretation and defining the new in reference to the architectural traditions that preceded it. In doing so,

the Five Principles offer a compelling example that aligns with and enriches the perspectives of Colin Rowe, Alberto Pérez-Gómez, and David Rifkind.

The Five Principles represent a framework for exploring spatial possibilities and overcoming architectural limitations. By incorporating these principles, which form the vocabulary of modern architecture, Villa Savoye became a prototype for numerous subsequent projects. However, interpretations that reduce these principles to mere visual or artistic elements have detached them from their original intent, transforming them into symbols of a specific architectural style. As Modern Architecture became "established and institutionalized," to use Rowe's words (1975, p. 3), and evolved into the International Style, many projects adopted the appearance of modernity while neglecting the spatial and functional potential of these principles. This shift, which attracted criticism of Modern Architecture, marked a departure from its foundational ethos as a discipline centered on spatial innovation and the promotion of health and well-being, as Beatriz Colomina (2019) emphasizes. Consequently, pseudo-modern designs proliferated, reducing modern architecture to a superficial aesthetic. Today, misguided interpretations persist, including unusable flat roofs, glass façades that hinder natural ventilation, and arbitrarily elevated buildings with pilotis—design choices that appear modern but fail to embody the core values of those principles.

Despite being subject to exhausted stylistic and visual interpretations, Villa Savoye remains a dynamic and evolving architectural endeavor. The principles employed in its design have continually adapted to address new design challenges, demonstrating their capacity to respond to diverse functional demands and contexts. These principles have shown versatility, sometimes assuming new roles and at other times undergoing transformation. Analyzing how the principles of Villa Savoye have been reinterpreted and applied in Le Corbusier's later works and contemporary projects reveals both continuities and disruptions in architectural design culture, emphasizing their enduring relevance beyond mere historical significance.

The following chapter investigates the reinterpretation of these design

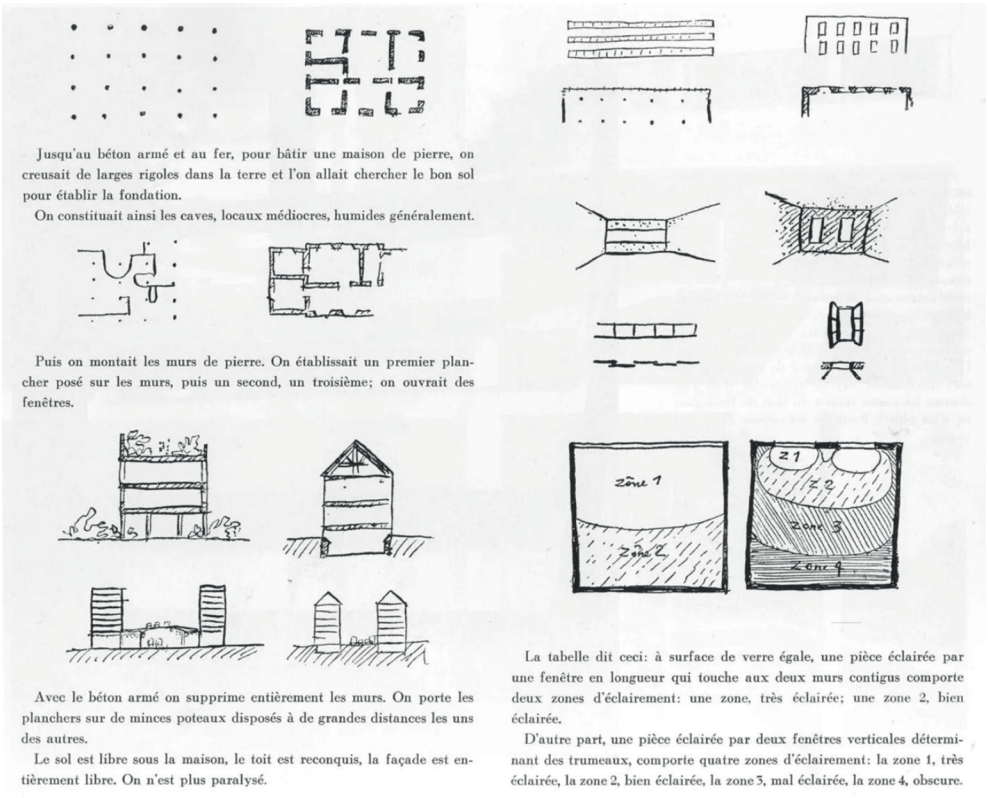


Figure 2. *Sketch of Five Principles (Le Corbusier & Jeanneret, 1964, p. 129).*

Table 1. *Villa Savoye & Evolution of Principles in Recent Projects.*
Note. The principles of Villa Savoye are illustrated in the first column, alongside their endurance and evolution as reflected in more recent architectural projects.

Pilotis and its Capacity to Generate Intermediate Spaces			
			
Figure a. Ground floor, Villa Savoye (U.p., n.d.) *© FLC / ADAGP*	Figure b. Agadir Hotel and Convention Centre, OMA, 1990 (El Croquis, 1990, 190)	Figure c. House of Music; Sou Fujimato, 2022 (Zczillinger, 2024) CC BY-ND 2.0.	Figure d. EPFL Rolex Learning Center, SANAA, 2010 (Lazar, 2011)
Open Plan and Versatility to Navigate Both Control and Freedom			

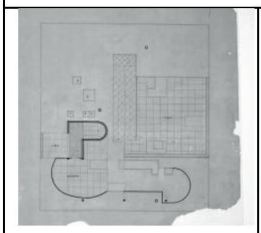
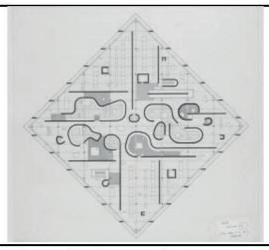
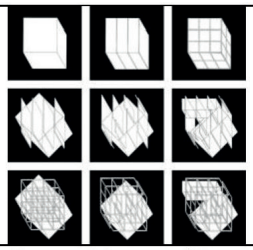
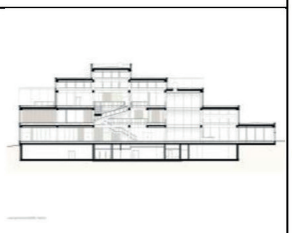
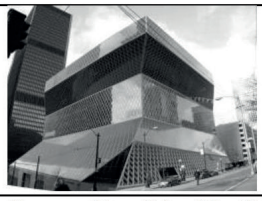

			

Figure e. 2nd floor plan of Villa Savoye (FLC , n.d.) *© FLC / ADAGP*	Figure f. Diamond Museum C, plan, John Hejduk 1967 (CCA, n.d.) © CCA	Figure g. Diagram of House III (Eisenman, 1971)	Figure h. Section of HSG Learning Center (Fujimoto, 2018)
Roof Garden: Generative Principle for Activating Surfaces			
			
Figure i. Roof terrace of Villa Savoye (Gravot, n.d.) *© FLC / ADAGP*	Figure j. Delft University Library, Mecanoo, 1998 (Choinowski, 2017)	Figure k. NEMO Science Center, Renzo Piano, 1997 (Castenoid, 2016)	Figure l. Oslo Opera House, Snohetta, 2007 (Vladacanon, 2016)
Horizontal Window and the Free Facade: Control and Flexibility in the Building Envelope			
			
Figure m. Free facade of Villa Savoye (Kozlowski, n.d.) *© FLC / ADAGP*	Figure n. Glass Skin of Seattle Public Library, OMA, 2005 (Ozinoh, 2007)	Figure o. Free Facade of Musée du quai Branly, Jean Nouvel, 2006 (Djiann, 2018)	Figure p. Free Facade of 21st Century Museum, SANAA (Toyoma, 2007)
Architectural Promenade as the Generative Principle of Circulation Diagram			

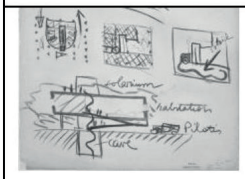
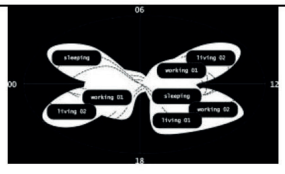

		

Figure r. Sketch of Villa Savoye (FLC, n.d.) *© FLC/ADAGP*	Figure s. Jussieu Libraries (OMA, 1992)	Figure t. Diagram of Mobius House (UN Studio, 1993)	Figure u. Yokohama Port Terminal, FOA, 2002 (Aozora1, 2017)

principles—pilotis, open plan, roof garden, horizontal windows, free façade, and architectural promenade—in other Le Corbusier projects and contemporary architectural contexts. To illustrate the evolution and continuity of these principles, a comparative table highlights key elements of Villa Savoye alongside their transformations in contemporary architecture.

4.1. Pilotis and its capacity to generate ıntermediate spaces

More than merely elevating a building, 'pilotis' continues to serve as a valuable design tool, mediating the relationship between interior and exterior spaces as well as between programmatic elements and the ground. Even in Villa Savoye, pilotis offered advanced spatial solutions. By elevating the structure, the pilotis not only facilitated the flow of vehicles and nature beneath the building in its classical role; but also created a buffer zone that separated the house's upper-floor programmatic elements from the ground layer of the outside world (Figure a in Table 1, Figure 3).

In Le Corbusier's final project, the Venice Hospital (1964), the spatial transitivity achieved through pilotis was elevated to an urban scale (Figure 4). In this design, pilotis created an interface between the city and the hospital's specialized activities, raising the structure to establish a public layer at ground level. This layer facilitated the continuation of urban activities before transitioning into the hospital's interior spaces, while also organizing pedestrian and vehicular access, including connections from the water (Cinar, 2005).

The role of pilotis in creating a buffer space is prominently featured in Rem Koolhaas's Agadir Convention Center (1990) and Sou Fujimoto's House of Hungarian Music (2022). In the Agadir Convention Center, pilotis establishes a void at the ground level, dividing the building into two parts: the hotel program above as a single-floor roof structure and the conference center below ground. This void, defined as an urban room or covered plaza, facilitates public interaction (OMA, n.d.) (Figure b in Table 1). Similarly, the House of Hungarian Music raises its structure on slender pilotis, creating a division between educational spaces on the roof and exhibition spaces below ground. Drawing inspiration from the trunks of park trees, the pilotis allow nature to flow under the roof, while the open ground floor, supported by pilotis, accommodates musical performances with two stages (Fujimoto, 2023, pp. 20–25) (Figure c in Table 1).

Expanding on this concept, SANAA's Rolex Learning Center (2010) redefines the role of pilotis by dissolving the distinction between upper and lower floors. The undulating floor, running parallel to the roof, connects different levels seamlessly. As it contacts the ground, it serves as an entrance, while its rise facilitates urban flow across the structure (SANAA, 2015, pp. 38–49) (Figure d in Table 1).

Figure 3. *Ground floor interior, Villa Savoye (Gravot, n.d.) © FLC / ADAGP.*

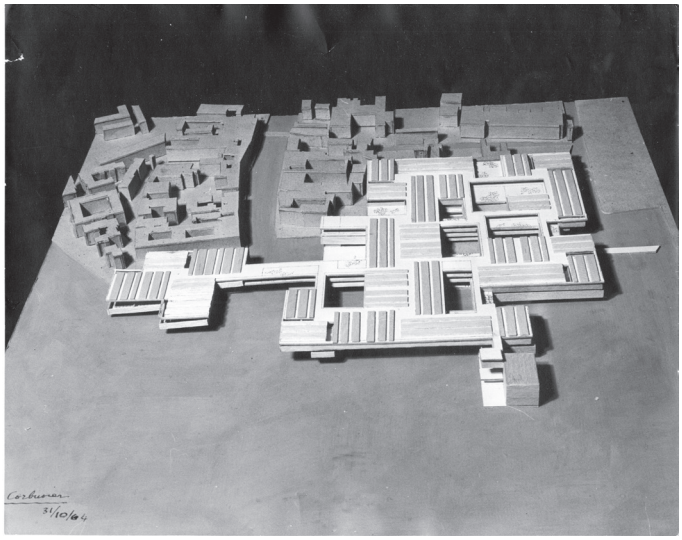


Figure 4. *Venice Hospital project model (Unidentified photographer, n.d.) © FLC / ADAGP.*

4.2. Open plan and versatility to navigate both control and freedom

The open plan liberates the floor plan from structural constraints, allowing spatial configurations to be determined independently of the structural system or grid layout. Le Corbusier began experimenting with the open plan during his studies for the Domino House in 1914–1915 (Curtis, 1995, p. 43). By 1930, he had advanced the concept into four distinct compositions that demonstrated various ways an open plan could organize the interplay of mass, structure, and space (Curtis, 1995, p. 97). The final composition, Villa Savoye, exemplifies the grid's potential with remarkable imagination. Its most challenging feature is its ability to accommodate a complex succession of spatial programs while achieving a maximum variety of spatial qualities within a meticulously controlled envelope (Figure e in Table 1).

The open plan has undoubtedly become a foundational design strategy, profoundly influencing architectural practice and education. Since the introduction of the Nine Square Grid exercise by John Hejduk at the University of Texas in 1954, the open plan has been a focal point of exploration in architectural education (Kalfazade, 2009). This exercise investigates spatial possibilities within the framework of a structural grid and continues to serve as a pedagogical tool in architectural schools worldwide (Acker, 2022). Both the Texas and Diamond House projects by Hejduk utilized the Nine Square Grid as a foundational design framework (Figure f in Table 1). Expanding on this concept, Peter Eisenman's Cardboard Houses incorporated dynamic actions into the open plan, transforming it from a static design strategy into an evolving process (Love, 2003) (Figure g in Table 1).

While advancements in digital design tools and construction technologies have introduced new formal possibilities, the grid and open plan remain integral design tools in contemporary architectural practice and design studios. Sanaa, for example, employs these tools effectively to create flexible spatial arrangements within a constrained envelope. In the Glass Pavilion, completed in 2006, a grid of interconnected, bubble-shaped spaces defines programmatic relationships and forms the structural basis of the design (Sanaa, 2006, pp. 72-81). Similarly, in the HSG Learning Center, completed in 2022, Sou Fujimoto employs the grid as a strategy to integrate the building into its urban context, while also enabling an open, non-hierarchical spatial organization. The structural grid allows for flexible interpretations of the spatial program, with the building mass—represented as a three-dimensional grid of cubes—rising from the street level to meet the surrounding residential scale. This terraced form creates dynamic relationships between interior and exterior spaces, while also enabling natural light to penetrate the heart of the building (Fujimoto, 2023, pp. 26-31) (Figure h in Table 1).

4.3. Roof garden: Generative principle for activating surfaces

The roof garden in Villa Savoye transcends the conventional concept of a flat roof, evolving into a sophisticated spatial element that forges a dynamic indoor-outdoor relationship and offers varying outdoor experiences at different levels. It reveals the building's potential to engage with the sky, becoming a key formal feature in Le Corbusier's design. In Villa Savoye, the roof garden is designed across two levels, each providing distinct outdoor spatial qualities. The first level, an open-air living room—referred to by Le Corbusier as the 'hanging garden'—is positioned on the first floor, providing a space that is shielded from the outside and seamlessly connected to the interior living areas. The second level, accessed via a ramp, opens up to a sunbathing terrace defined by free-form walls, reflecting modernist ideals of hygiene and physical exercise as integral to contemporary living (Colomina, 2019, p. 22) (Figure i in Table 1). In Le Corbusier's Unité d'Habitation, the roof garden concept evolves further, becoming a collective space that serves the residents of 337 apartments. It incorporates facilities such as a nursery, swimming pool, gym, and running track, underscoring the

roof's role as an essential component of modern communal living (Figure 5).

The sloping roof of the Delft University Library, designed by Mecanoo in 1998, functions as a plaza—a vibrant gathering space for students—that blurs the boundary between architecture and landscape (Figure j in Table 1). This roof garden exemplifies how the roof can be transformed into a livable surface, suggesting the idea that a building's various surfaces can serve active and engaging purposes. Similarly, in Renzo Piano's Nemo project, completed in 1997, the roof is boldly reimagined to incorporate a public square and the building's entrance, which is accessed by a ramp from street level (RPBW, 2024) (Figure k in Table 1). Snohetta's Oslo Opera House, completed in 2007, takes this idea even further, not limiting its engagement to just the roof but extending it across all surfaces of the building (Figure l in Table 1). The fact that every surface of the building can be experienced emphasizes its potential to integrate with both its environment and the surrounding landscape (Snohetta, 2024).

4.4. Horizontal window and the free facade: Control and flexibility in the building envelope

The development of the horizontal window was an effort to establish alternative means of visual connection between the exterior and the vertical geometry of classical architecture. The horizontal window reflects Le Corbusier's passion for airy, well-lit interiors that offer maximum visual connection with nature. In Villa Savoye, it also serves as a boundary, concealing the hanging garden from the view of onlookers on the grounds. By maintaining unobstructed panoramic views, the ribbon window defines the outer contour of the building's mass (Figure 6). According to Colomina (1994, pp. 311-312), the ribbon window acts as a device for framing a continuous view, allowing the eye to move seamlessly across the landscape. This cinematographic effect is boldly experienced in Le Corbusier's Dominican Monastery of La Tourette (1961). Beginning in the 1930s, Le Corbusier incorporated *brise-soleil* into his architectural vocabulary, addressing the issues of heat gain and light control in hot climates like Brazil and India. The horizontal window, seen as an alternative to the restrictive geometry of classical architecture, signifies a freedom in design that allows facades to disappear, erasing the boundaries between the interior and exterior as new materials and application techniques facilitate this integration.

The horizontal window is a feature enabled by the free facade, which emerges from the free plan. The free design of the facade detaches the building's exterior from its structural function, liberating it from traditional constraints. This freedom allows the facade to be lighter, more open, and unrestrained. In Villa Savoye, the free facade is more than a simple two-dimensional skin; it acts as a bordering and filtering element. It defines the

Figure 5. *Roof terrace of Unité d'Habitation (Kozlowski, n.d.) © FLC / ADAG.*

Figure 6. *Horizontal window as a mass definer in the roof terrace of Villa Savoye (Gravot, n.d.) © FLC / ADAGP.*

building's contour and outer shape while also enclosing the terrace by creating a boundary (Figure m in Table 1). In the Unité d'Habitation in Marseille (1952), the free facade becomes a spatial boundary defined by balconies. In the Palace of Assembly in Chandigarh (1962), it transforms into a brise-soleil, serving as a filter for sunlight and climate. In Maison Curutchet (1953), the facade takes on a programmatic function, housing office spaces and acting as a buffer zone between the house and the street (Fondation Le Corbusier, 2024).

Advancements in construction technologies have continued the journey of facade liberation that Le Corbusier initiated, evolving it into a unique field of expertise. The facade has developed into an almost autonomous identity, with smart, adaptable skins and living, green facades. The glass and metal skin of the Seattle Public Library, designed by OMA and completed in 2004, demonstrates how a facade can function as a continuous, transparent envelope. It integrates programmatic platforms, creating interconnected spaces while maintaining a cohesive visual identity through its diamond-patterned mullion system (OMA, n.d.) (Figure n in Table 1). The facade, both as a material property and a design principle, takes on powerful meanings in Jean Nouvel's projects, such as the Institut du Monde Arabe (1987), Fondation Cartier (1994), and Musée du Quai Branly (2006) (Ateliers Jean Nouvel, 2024) (Figure o in Table 1). In the 21st Century Museum of Contemporary Art, designed by Sanaa and completed in 2004, the facade is both freed and made to disappear as a delicate border element. Detached from its structural loads and connections, it merely defines the building's contour (Sanaa, 2006) (Figure p in Table 1).

4.5. Architectural promenade as the generative principle of circulation diagram

The ramp was a crucial design principle in Le Corbusier's architectural vocabulary and a significant historical precursor to modern circulation diagrams, though it was not one of the 'five points of a new architecture.' Inspired by his visits to the Acropolis and Arabic cities, promenade architecture transcends mere functional circulation. It serves not only as a mechanical means of connecting spaces but also as a device for slowing down the experience of movement and seeing (Curtis, 1995, pp. 96-97). In Villa Savoye, the ramp acts as the primary spine of the building, organizing its vertical spatiality (Figure r in Table 1). It continuously offers contrasting features between the interior and exterior, creating rich visual and spatial relationships. Prior to Villa Savoye, Le Corbusier had already explored the ramp as a tool for three-dimensional visual perception, particularly in the

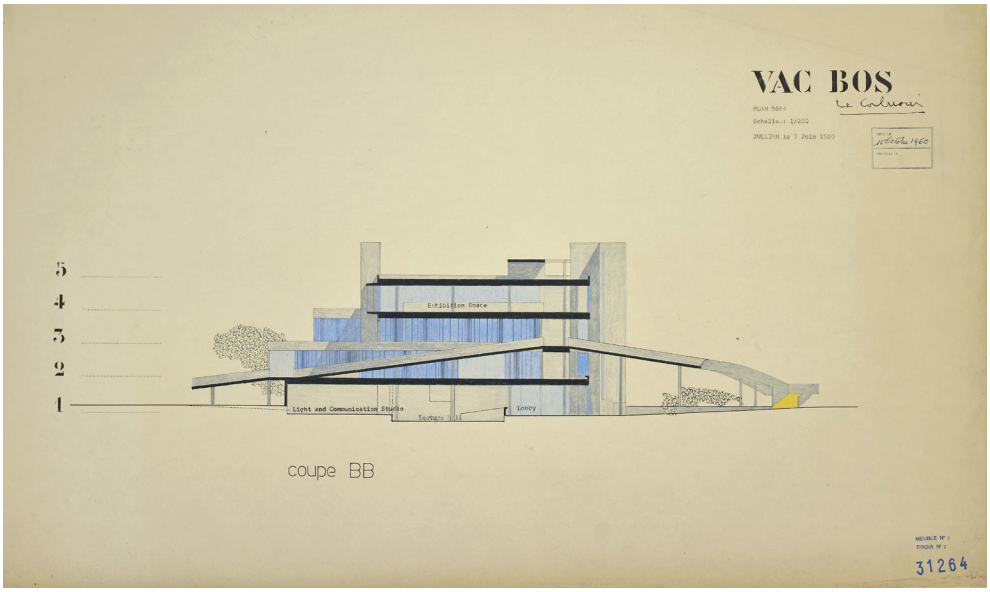


Figure 7. *Section of architectural promenade, Carpenter Center Plan FLC 31264 (Fondation Le Corbusier, n.d.) © FLC / ADAG.*

art gallery of Maison La Roche (1925). The promenade concept reached its zenith at the Carpenter Center (1963), where it became the central element in the organization of both space and mass (Figure 7).

Rem Koolhaas's architecture often draws inspiration from the concept of the architectural promenade, symbolized by the ramp. In the Rotterdam Kunsthal (1992), a sequence of cinematically framed events unfolds along a continuous promenade. Koolhaas also incorporated Le Corbusier's architectural promenade into his design concepts for the Jussieu Libraries (1992) (Figure s in Table 1) and the Seattle Central Library (2004), where the public collection space is interpreted as a continuous access ramp (Moulis, 2010). In many of his subsequent projects, the architectural promenade has evolved into a form generator, emerging through diagrams of movement (Böck, 2015). The Möbius House by UNStudio (1998) is based on the idea of continuous circulation between social and private spaces, with blurred boundaries (Figure t in Table 1). The Yokohama International Port Terminal, designed by Foreign Office Architects (2002), offers a bold example of diagram architecture, where the circulation scheme dominates the spatial organization. This continuous looped diagram of circulation integrates the building into the urban ground through a complex series of surfaces, creating an architectural topography (Foreign Office Architects, 1995, pp. 7-21) (Figure u in Table 1). While the formal devices may differ, the underlying idea—that circulation diagrams serve as indicators of form—remains consistent.

5. Concluding remarks

Within this discourse, my objective was to avoid repeating the extensive literature on Le Corbusier—the highly debated architect of the 20th century—and *Villa Savoye*, his paradigmatic work. The focus here is on highlighting that, despite years of discussion and analysis, an architect of such prominence and his most iconic project can still offer fresh insights as our perspectives evolve. In the case of Villa Savoye, often remembered for its entrance washbasin during the pandemic, this essay extends the discussion surrounding precedent and design. The aim was to underscore that the controversial relationship between precedent and design is shaped by our perspective, suggesting that our engagement with the past is dynamic and can always be reinterpreted through the questions we pose to it. The potential of precedents to offer new answers is closely tied to their ongoing contribution to the design culture.

The principles embedded in Villa Savoye are not only symbolic representations of their era but also remain viable design tools today. When examined through their organizational and performative functions—*pilotis* as a device for creating buffer zone between the ground and the programmatic spaces, the *roof garden* as a principle for activating the building surfaces, the *open plan* as a strategy for achieving flexibility and spatial freedom, the *free facade* as a mass-controlling and filtering element, and the *architectural promenade* as a generative diagram—these elements transcend their stylistic features and remain relevant to contemporary discourse.

Examining how these principles in Villa Savoye have been transformed and employed with new possibilities in Le Corbusier's later works, and subsequently in contemporary projects by other architects, helps deepen our understanding of the continuities and disruptions in the design culture. This perspective—viewing our relationship with the past as evolving and enriching—paves the way for a more holistic approach to design culture. When coupled with the idea that innovations are not merely breaks from the past but catalysts for transformation, we embrace a continuity that stimulates progress within the context of historical evolution.

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Endnotes

[1] Direct quotation is:

> "A pair of wings, a different mode of breathing, which would enable us to traverse infinite space, would in no way help us, for, if we visited Mars or Venus keeping the same senses, they would clothe in the same aspect as the things of the earth everything that we should be capable of seeing. The only true voyage of discovery, the only fountain of Eternal Youth, would be not to visit strange lands but to possess other eyes, to behold the universe through the eyes of another, of a hundred others, to behold the hundred universes that each of them beholds, that each of them is; and this we can contrive with an Elstir, with a Vinteuil; with men like these we do really fly from star to star." (Proust, 1929/2003, p. 343).

[2] Aware of the extensive body of literature surrounding Le Corbusier and his architecture, I have endeavored to avoid redundancy in this essay. Stanislaus von Moos has curated an exceptional library of key publications in the revised and expanded edition of *Le Corbusier, Elements of a Synthesis* (2009/1979), while the archive made accessible by Fondation Le Corbusier, Paris further enriches the scholarly discourse on Le Corbusier and his architectural legacy.

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