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Manifestations of Nature as Ornament in Contemporary Architecture

This paper seeks to explore the evolving role of nature as ornamentation in architecture. Historically, natural elements have been represented in construction for aesthetic and symbolic reasons, as seen in Egyptian lotus capitals or Assyrian reliefs. In the contemporary context, however, rather than being directly represented, nature appears to be employed in two other ways. One is through the emulation of natural processes or behaviors, known as biomimetic design. The other is through the integration of vegetation into buildings via built-in planters or green cladding. The ornamental aspects of both approaches emerge from the current understanding of ornament, which today is interpreted largely as a performative element integral to a building's genesis, often blurring the line between structure and embellishment.
Within this framework, the incorporation of nature into design offers environmental benefits that help mitigate the human impact on habitats while it simultaneously serves as ornamentation, reconnecting people with nature and conveying a message of environmental responsibility. While green architecture stems from a moral imperative for sustainability, it concurrently communicates this ethos through its design.
In this light, this paper argues that the traditional representation of nature has been transformed into biomimetic design and the direct integration of vegetation, both functioning as ornamentation. The study examines the motivations behind this shift, its implications, and how it reflects a biophilic ethos and environmental concern. Although nature in contemporary architecture is extensively studied, its role as an ornamentat remains relatively underexplored. Thus, this paper aims to take a step toward bridging this gap in the architectural discourse.

Keywords:
nature and architecture; architectural ornament; nature as ornament; biomimetics; green architecture

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1. INTRODUCTION

Two of the leading discourses in architecture today are the return of ornamentation and the emphasis on environmental responsibility. The integration of nature in contemporary design addresses both issues simultaneously, illustrated by the prevalence of biomimetic design, which appears as ornamental patterns or structural gestures, and the incorporation of vegetation as an aesthetic expression of environmental responsibility. Both approaches differ from the historical tradition of representing nature in construction while their precursors can be found in Late Modern practices, specifically Metabolism and Brutalism.

Although primarily emerging as architecture's moral response to the ecological crisis, this paper posits that the employment of nature is not confined to mitigating human impact on the environment but also functions as a discursive ornament that communicates architecture's commitment to sustainability. The widespread adoption of green façades, regardless of their environmental benefits, creates a symbolic context in which the urban landscape is reconciled with nature. The aspiration for mediation is particularly significant given that ecological damage has become a prominent global concern (Levit, 2008). Thus, ornamental patterns mimicking natural forms or the direct incorporation of plants broadcast a biophilic ethos through aesthetics to address a universal issue.

Despite the burgeoning literature examining the relationship between nature and architecture, the exploration of nature as an ornamental feature and its communicative role in design are relatively new and sparse study areas. Only very recently have Daglio & Kousidi (2023) published their groundbreaking article *From Ornament to Building Material* where they address the incorporation of nature as an ornament. Another significant contribution to the field is an innovative research project entitled *Biornametics*, which aims to interconnect biomimetics with ornamentation (Gruber and Imhof, 2013). Additionally, in their publications, Picon (2013), Levit (2008) and Cohen & Naginski (2014) explicitly define the exploitation of nature as a form of symbolic ornament. Beyond these studies, although they do not present a direct argument, various sources mention nature in architecture in ways that imply an ornamental or communicative aspect (Pero, 2011; Gruber, 2011; Finocchiaro & Hestnes, 2011; Jarzombek, 2014; Moreira-Zambrano & Moreno-Rangel, 2020). This overview highlights a theoretical gap in the literature; namely, that a widely prevalent praxis lacks an established theory.

In this framework, the study seeks to address the evident literature gap by scrutinizing nature's role as a form of rhetorical ornamentation in contemporary design. To do so, the article will first endeavor to define the current state of ornament and then explore how nature has been employed as an ornamental feature historically, in order to understand the trajectory of present approaches. It will then discuss today's practices to explore the rationale behind, and the manner in which, contemporary designs incorporate nature and their implications for the architectural profession, examining various examples to illustrate diverse perspectives.

2. THE STATE OF ORNAMENT IN CONTEMPORARY ARCHITECTURE

The late 20th century witnessed a comeback of architectural ornament, largely driven by digital technologies and the proliferation of tessellations and patterns that integrate ornamentation into the design process (Picon, 2013; Gleiter, 2009). Additionally, the complexity of contemporary construction methods, which separate the façade from the structure, has made surface articulation paramount in shaping a building's character (Zaffora, 2020). Hence, while Modernism emphasized spatial and tectonic qualities, contemporary architecture's focus has shifted towards the expression of the façade. This amplifies ornamentation's significance in the building envelope, which must now also address environmental concerns such as energy efficiency and light control (Picon, 2013).

Given this context, the ongoing ontological and semantic shift in architectural ornament deserves a closer look.

2.1. THE ONTOLOGICAL SHIFT

While ornamentation endures in contemporary architecture, scholars agree it differs significantly from its historic nature (Picon, 2013; Zaffora, 2020). Traditionally viewed as an embellishment separate from structure, in line with Bötticher's *Kernform* and *Kunstform* concepts, the distinction between structure and ornament has blurred in current practice (Lynn, 2004), as evidenced by projects like Herzog & de Meuron's Bird's Nest where the structural gesture itself serves as ornament.

In today's discourse, ornament is considered a performative entity (Lynn, 2004), a view significantly influenced by Moussavi and Kubo's groundbreaking book *The Function of Ornament* (2006). The authors interpret ornament as a functional component with a broad definition that encompasses various means. For instance, they recognize the amorphous form of the Selfridges Department Store by Future Systems, the quilted façade of Prada Aoyama Store by Herzog & de Meuron and the random pattern of Toyo Ito's Serpentine Pavilion as ornaments (Moussavi & Kubo, 2006).

Within this framework, patterns, texture, diversity, modularity, color, rhythm, topology, light, materials, tessellations, prints, and the artistic gestures of a building's mass, are increasingly regarded as ornaments (Fabi & Piovene, 2020; Picon, 2013). Thus, architectural elements can be structure and embellishment simultaneously, as presented by van Raaij in his book *Building as Ornament* (2014), where he argues that iconography expressed through formal gestures constitutes the ornamental vocabulary of contemporary design.

In this context, both nature and morphogenetic forms can be considered ornamental elements (Daglio & Kousidi, 2023). Picon (2013, p. 149) describes the vegetation on metal panels in Kengo Kuma & Associates' Green Cast Project as a "mobilization of nature as ornament", while Levit (2008, p. 4) asserts morphogenetic forms, such

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as Federation Square by Lab Architecture or the works of Ali Rahim, make "a major contribution to the architecture of ornamental patterning". Besides acknowledging their ornamental status, scholars also emphasize the symbolic dimension. Picon (2013, p. 148) notes that in the BOOM Hengelo Project by MVRDV, the cantilevering gardens "might be ... imparted with a clear **symbolic** function".
This carries the argument to the symbolic level. Levit (2008) argues the focus on sustainability has led to new representational regimes in architecture alongside technical innovations aimed at reducing energy consumption. These approaches seek to align architectural design with nature, creating a built environment in harmony with the natural world, where greenery is recognized as an ornament symbolizing a commitment to sustainability (Levit, 2008).

2.2. THE SEMANTIC SHIFT

In addition to the ontological shift, there has been an ongoing semantic shift regarding ornamentation. Traditionally, ornament expressed values, cultural meanings and memories (Necipoglu & Payne, 2016), while today, it is believed ornament is more about expressing construction processes and immanent operations. Moussavi (2006) contends ornament no longer represents, but evokes sensations, or "affect"s as she calls them, in viewers. This shift from culturally coded ornament to a focus on affect and the echo of integral forces in the generation of form reflects the challenge of symbolic communication in a globalized world, as the absence of a shared visual tradition has led to a more technical approach to ornamentation, seeking broader consensus in a world without a unified conception of beauty (Necipoglu & Payne, 2016; Pero, 2011).
Despite efforts to eliminate the symbolic aspect, ornament remains inherently symbolic, reflecting contemporary societal dynamics as a cultural signifier, akin to its traditional role (Levit, 2008). However, it integrates symbols more closely tied

Fig. 1 - Al Bahr Towers photo: ©Inhabitat via Flickr (2014) (CC BY-NC-ND 2.0)

to the building's function or narrative, rather than to external references, in order to reflect collective global values (Picon, 2013).
It would not be wrong to claim that the most universally resonant value today is nature and the commitment to sustainability, as climate change and ecological damage became shared global concerns. Hence, the adoption of nature by the architectural profession exploits its status as a universal value in a globalized world, revealing that architecture's interest in nature stems not only from environmental concerns but also —perhaps more so— from the challenge of conveying global values.
In a world where local architectural symbols are not universally interpreted, architects are increasingly connecting local references to global ones. The Al Bahr Towers in Abu Dhabi, designed by Aedas, feature a responsive second façade functioning as a climate and light control mechanism (Fig. 1). The pattern, an abstraction of *mashrabiyya* —a traditional Islamic latticework used for climate and privacy control— is generated by bio-inspiration, mimicking the behavior of flowers in response to sunlight. Even those unfamiliar with *mashrabiyya* can still recognize the floral pattern and feel the ornament's "affect". Concurrently, the floral motif conveys a political message, communicating "the aspiration of the emirate to take a leadership role in the area of sustainability" (Peter Oborn, cited by Cilento, 2012).
Given the recognition of nature as a form of ornament, it is essential to explore the historical relationship between ornament and nature, since, as Ferguson (2008) suggests, understanding this enduring connection is crucial for interpreting ornament in a contemporary context.

3. THE TRANSFORMATION OF THE RELATIONSHIP BETWEEN NATURE AND ARCHITECTURE

Just as ornament differs from its traditional form, the use of nature in architecture has shifted from its previous state. Throughout history, architectural creations have employed nature as a form of representation. Ancient designs emulated natural forms in the creation of architectural elements, such as Egyptian capitals modeled on lotus flowers. Another, and more common, way of integrating nature involved the depiction of flowers and vegetation, as seen in fragments ranging from Assyrian wall reliefs to Baroque vegetal motifs.
As a significant portion of ancient ornamentation is derived from nature, Riegl (1893/1992) identifies vegetal ornament, especially Egyptian examples, as the foundation of all historic ornamentation. Correspondingly, Day (1892) asserts nearly every detail of ancient vegetal ornament has a symbolic origin. Thus, the drive to employ nature as embellishment stems not only from aesthetic concerns but also from a desire to convey a larger narrative by representing a symbolic phenomenon that binds people to their culture.
The Renaissance belief in the perfection of nature and the Enlightenment notion that the origins of architecture lie in the mimicry of nature's universal principles (Cohen & Naginski, 2014) demonstrate a different relationship between nature and architecture. While Egyptian columns merely imitated vegetal forms, natural elements were used and reorganized to emulate the structural clarity and geometry of nature in Laugier's primitive hut (1753), suggesting that architecture should adopt nature's principles rather than merely replicate its forms.

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Similarly, Japan Metabolism emulated nature not for beauty, but for behavioral patterns, such as tree structures, unit repetition and biological proliferation (Gruber, 2011). Metabolism, a precursor to biomimetics in contemporary design, subsequently influenced Structuralism (Gardner, 2020), for which Jencks (1988, p. 35) acknowledges the ornamental aspect stating the overemphasis on structural expression by van Eyck and Hertzberger led to "structure as ornament".
In a similar vein, Lavin (2014) argues it was Post-Structuralism that initiated the contemporary relationship between nature and architecture. She does not confine her argument to biomimicry but includes the actual incorporation of vegetation in design, noting the irony that "one of the most radical schools of thought ... could result in ... buildings shaped like trees and bigger trees and even bigger trees" (Lavin, 2014, p. 40). Indeed, both Renaissance and Enlightenment ideals viewed nature as a conceptual departure point rather than an integrated element of architectural form until the Modern era. The geometrically pure Ideal City illustrations of the Renaissance lack nature, whereas the living quarters in Tony Garnier's Industrial City embrace it. In Garnier's drawings, greenery is virtually the only ornament on the rigid forms, as the integration of natural elements was a response to the unhealthy conditions of 19th-century industrial cities.
Modernists embraced nature as a mediator between man and industry, arguably making it the only acceptable ornament beyond the articulation of form. When faced with public criticism for the plain façade, Loos placed flowerpots in Goldman & Salatsch Building to obtain occupancy permission (Gössel & Lauthäuser, 2001). Another pioneer of modern design, Le Corbusier valued hanging and roof gardens, while his later projects, the Mill Owners' Association Building (Fig. 2) and Villa Shodhan, showcase the coexistence of *béton brut* with the softening lines of vegetation —a feature that would later influence Brutalist dwellings, such as the Barbican and the Alexandra Road estates, which incorporate greenery into their otherwise austere façades.

Fig. 2 - Mill Owners' Association Building, photo: ©Sanyam Bahga via WikiMediaCommons (2009) (CC-BY-SA-3.0)

As reflected, when ornament was banned by Modernism, new forms of communication were sought, reintroducing ornamentation in the guise of an environmental ethos. The sunshades and planters of Mediterranean Modernism serve a dual purpose as communicative ornamental elements. Consequently, it can be asserted that the employment of nature as ornamentation in contemporary architecture has its roots in Modern and Late Modern approaches.

4. CONTEMPORARY PRACTICES

It is the current quest for sustainability that defines the relationship between nature and architecture today, provoking architecture's increasing tendency to employ nature as a design element (Gruber, 2011). Rapid urbanization and industrialization have accentuated the significance of nature, reflecting a response to humanity's disconnection from the natural world. Thus, new design priorities, including reducing carbon emissions, decreasing energy consumption, utilizing alternative energy sources and reusing waste, have emerged. These sustainability-driven elements are often prominently expressed in façades, creating a "recognizable *image*" that communicates environmental responsibility (Pero, 2011, p. 217).
Although the traditional representation of nature has not entirely disappeared, as evidenced by the leaf-patterned silkscreen print in the Ricola Europe Factory by Herzog & de Meuron, nature now more frequently appears in buildings in two other forms: biomimetic designs, which mimic nature in material or function, and the direct integration of vegetation within buildings.

4.1. BIOMIMETICS

The term biomimetics, sometimes used interchangeably with bioinspiration, can be broadly described as transfer of information from biology to architecture (Gruber, 2011). By interpreting and abstracting the logic and functional principles found in nature, sustainable solutions are sought (Finocchiaro & Hestnes, 2011). Emulating nature can involve various aspects such as structure, material, form, function, behavior, generation patterns and processes. Nonetheless, the design process frequently leads to either ornamental patterns or sculptural forms, both of which are closely tied to architectural ornamentation. In a research project aiming to integrate biomimetics with ornamentation, researchers coined the term "biornametics" to describe "the strategic approach of biomimetics projected onto a new understanding of ornament" (Gruber & Imhof, 2013, pp. 23-24). Unsurprisingly, one aspect of their focus is the concept of pattern, which serves as a fundamental element in both computer technology and natural processes and forms the basis of contemporary ornamentation.
The patterned language of biomimetic design is often strikingly prominent. For instance, the biomimetic façade PHO'LIAGE®, developed by Art-Build for energy efficiency goals and inspired by the thermonastic and photonastic behaviors of plants (ArtBuild, n.d.), features a patterned surface reminiscent of flowers. Emulation through patterns also manifests in structural forms. In The Elytra Filament Pavilion by Achim Menges and the ICD-ITKE University of Stuttgart (Fig. 3), a responsive canopy structure inspired by fibrous wings of a beetle (Santos, 2016), the patterned structure

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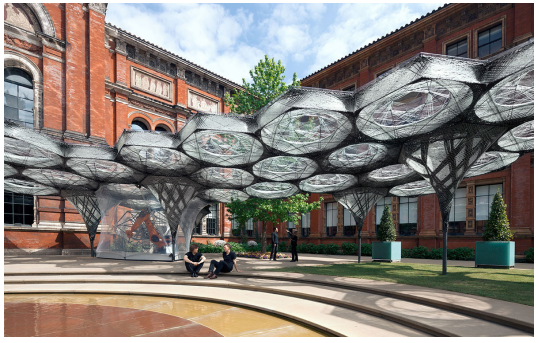

Fig. 3 - Elytra Filament Pavilion, photo: ©NAARO via (Santos, 2016) (Image courtesy of NAARO)

serves as an ornamental expression.
Similarly, in the works of Marc Fornes' Theverymany (Fig. 4), where computational design and digital fabrication are used to mimic the biological process of self-replication, both generative patterns and structural gestures function as ornaments. These forms blur the line between structure and ornament, in line with the "building-as-ornament" concept of van Raaij (2014). Another example of this approach is seen in the bio-inspired architectonic forms of Santiago Calatrava, where the sculptural form frequently overshadows functional and structural needs (Gruber, 2011).
Although biomimetics conveys a message of environmental sensibility, it does not necessarily entail sustainable solutions (Gruber & Imhof, 2013). Responsive façades, often highly complex industrial and digital structures, can entail high development and maintenance costs (ArtBuild, n.d.). For instance, Attia (2017) claims the Al Bahr Towers feature a computer-controlled shading screen managed by a Building Management System (BMS), which has an operational lifespan of 20 years while only 54% of users are comfortable with the temperature indoors. The researcher concludes that the building's visual impact was prioritized over sustainability, shifting "the focus from energy-efficient and green architecture toward iconic signature buildings" (Attia, 2017, p. 10). In this context, the cultural message conveyed through biomimetic ornamentation may overshadow environmental concerns. Similarly, Finocchiaro & Hestnes (2011) criticize biomimetic designs, arguing that when natural forms are superficially emulated, they rarely contribute to environmental sensitivity or sustainability, but merely give buildings an organic or natural appearance.

Fig. 4 - Under Magnitude installation by Marc Fornes, photo: ©900hp via Flickr (2018) (CC BY-NC 2.0)

4. 2. THE DIRECT INTEGRATION OF NATURE

Another contemporary practice in green design is the integration of nature itself—such as leaves, flowers, shrubs, and trees—into buildings. The greenery may appear in built-in planters, as in Villa M by Triptyque Architecture (Fig. 5), or form a second façade with steel supports, as seen in the Edificio Consorcio by Enrique Browne and Borja Huidobro. Another prevalent method is cladding façades with vegetation, known as a green wall, as seen in the Leamouth Peninsula Building N by SOM.

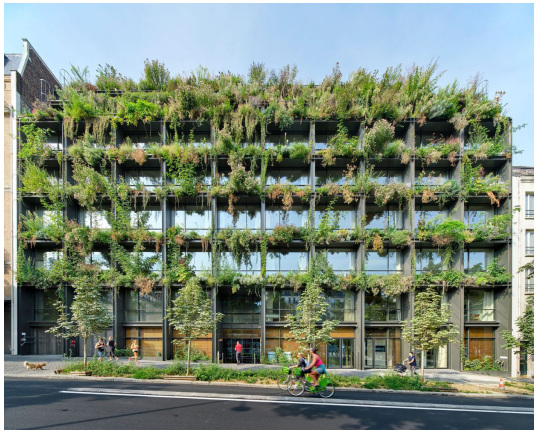

Fig. 5 - Villa M, photo: ©Michel Denancé via (ArchDaily, 2021) (Image courtesy of Michel Denancé)

The green wall, which substitutes traditional cladding materials, owes to Patrick Blanc, who is known for inventing the vertical garden (*le mur végétal*) in the 1980s. The design allows for plant growth on façades without soil, creating a thin layer that functions similarly to conventional cladding materials. Blanc has applied this concept in numerous projects, such as the CaixaForum Building by Herzog & de Meuron, where the vertical garden defines the plaza and aesthetically complements the building's red façade (Fig. 6).

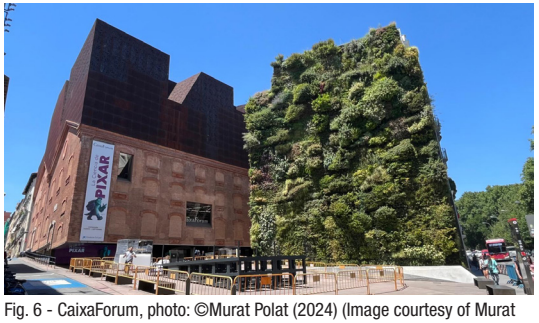

Fig. 6 - CaixaForum, photo: ©Murat Polat (2024) (Image courtesy of Murat Polat)

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Domeisen (2008, p. 45) observes that, beyond their acoustic and thermal benefits, Blanc's green walls are "most of all **ornamental** garden"s. Their primary role as ornamentation resides in the fact that they do not present nature in its raw form but rather as a controlled and aestheticized element. Unlike self-regulating natural forms, these walls are designed as a form of tamed nature, resembling a painting with a strong aesthetic dimension. Jarzombek (2014, p. 123) refers to such *in vitro* nature as "nature-as-image". The image-based status often conveys meanings linked to a project's narrative. For instance, the website of the Quai Branly Museum by Jean Nouvel states that its green façade, featuring plant species from Morocco to Argentina, contributes to the museum's "universalist message" while also "providing oxygen and **embellishment** for the city" (Musée du Quai Branly, n.d).

The ecological benefits of green façades, such as thermal insulation, improvement of air quality and reduction of heat island effect, are undeniable. However, beyond these advantages, green façades also serve an ornamental function due to their aesthetic appeal, invoking "visual sustainability" (Moreira-Zambrano & Moreno-Rangel, 2020, pp. 137-138).

The incorporation of vegetation in planters serves a similar purpose since plants often enhance the visual appeal of otherwise plain structures or convey a message of sustainability. For instance, would the Parkroyal on Pickering by WOHA not appear as an ordinary glass skyscraper without its integration of green terraces, which create a "garden-themed aesthetic" (WOHA, cited in Bingham-Hall, 2013)? Similarly, how would the Good Cycle Building by Nori Architects and Asanuma Corporation effectively communicate its environmental consciousness without vegetation, since the adaptation of a 30-year-old concrete structure with eco-friendly solutions —sustainability-managed logs, earth plaster, and recycled materials— does not visually reveal its sustainable approach? Yet, when nature is incorporated and exposed as a material within buildings, it acts as an ornament, communicating architecture's responsible

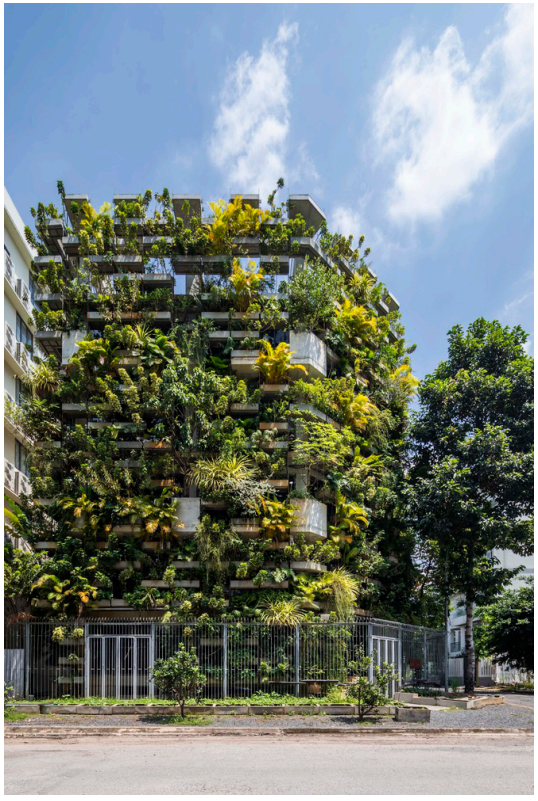

Fig. 7 - Urban Farming Office, photo: ©Hiroyuki Oki via (ArchDaily, 2023) (Image courtesy of Hiroyuki Oki)

response to the ecological crisis (Cohen & Naginski, 2014; Daglio & Kousidi, 2023). Thus, scholars often view nature in buildings as a symbol of sustainability. Picon (2013, p. 146) states:

"In some 'green' buildings, trees and other vegetal elements seem also to play a symbolic role, ... since the designer has placed them in both highly visible and improbable positions, like trophies meant to celebrate the victory of sustainability".

This is especially true when the symbolic aspect occasionally outweighs environmental benefits. For instance, a study on green façades concluded that although they contributed to thermal comfort indoors, they had a negligible impact on mitigating the urban heat island effect (Moreira-Zambrano & Moreno-Rangel, 2020). In this context, Jarzombek (2014, p. 125) asserts "nature is ... a shifting, if not actually empty, signifier". He further predicts that "architects will, of course, continue to ornament their drawings with green grass and trees while working with the Romantic image of a happy and contented nature" (Jarzombek, 2014, p. 122). This leads to the issue of communication, since, if a building employs "an *organic-looking* vocabulary" then it is perceived as sustainable (Finocchiaro & Hestnes, 2011, p. 270).

Nevertheless, numerous architectural firms embrace the design approach as a means of promoting their commitment to environmental responsibility. Stefano Boeri Architects —whose famous Bosco Verticale in Milan, a tower with terraces of biodiverse vegetation, has been followed by numerous vertical forests worldwide— advocates for an environmentally conscious approach through its "urban forestry" concept. Similarly, VTN Architects proposes an "urban farming" model in its Office Building in Vietnam (Fig. 7), where hanging planter boxes contain local edible plants. While the pragmatic function of food production outweighs the aesthetic considerations of a garden, the structure is still notable for its eco-brutalist aesthetic, that is a rising architectural trend especially amplified by social media.

Eco-brutalism, essentially the fusion of *béton brut* and lush vegetation, may sound like an oxymoron, given that construction and building maintenance are among the world's most energy-consuming sectors. Yet, this trend aims to convey a reconciliation between the built-environment and nature, and in doing so, it also uncannily resembles post-war Brutalism, demonstrating the influence of Late Modern practices on contemporary aesthetics. Predictably, the trend has faced criticism for prioritizing aesthetic appeal over genuine ecological needs (Kent, 2012).

On the other hand, the aesthetic pleasure provided by plants and their positive impact on human well-being are undeniable. The integration of na-

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ture forms the foundation for fostering mutually beneficial relationships between humans and the natural world. Studies on biophilia and restorative natural environments have demonstrated that human interaction with nature enhances physical, intellectual, and emotional well-being (Mangone & Teuffel, 2011). Levit (2008, p. 5) explains it on a more profound level, linking it to a matter of bio-social order:

"To the extent that social order is projected onto these forms, it is thus made a natural order. ..., the ordinary experience —in which social subjects abstract themselves from the natural world through thought and through the experience of that world as susceptible to human exploitation —is reversed. Our own social arrangements, our selves, and our architecture are made natural again. .... The individual is treated as a variable member of a larger field".

The concept of the individual engaging with the natural world portrays society as an extension of nature, reconciling the human social realm with the natural one, thus suggesting that contemporary biophilic forms could both construct and symbolize this natural image of society (Levit, 2008). Thus, perhaps, most of the benefits of plants integrated into buildings do not stem from their ecological benefits, but rather from the visual and symbolic comfort they offer as architectural ornaments.

5. CONCLUSION

Throughout history, architectural creations have incorporated nature as a form of ornament. While ancient designs typically used nature as a means of representation, conveying a specific cultural context, the relationship between nature and architecture has since been transformed. In contemporary architecture, nature is generally employed in one of the two ways: through the emulation of natural behaviors or patterns, or through the direct incorporation of vegetation into buildings. Both can be traced back to Late Modern approaches, specifically Metabolism and Brutalism.

The increasing interest in integrating nature into the architectural form emanates from concerns about the global environmental crisis. Although green architecture aims for sustainability and environmental rehabilitation, it also serves an ornamental function, restoring the connection with nature and signaling a commitment to mitigating human impact on the environment. This relationship between architecture and nature is underpinned by a moral imperative driven by the current ecological crisis.

This has been facilitated by the ornamental turn at the beginning of the century, during which the perception of ornament has shifted from an added embellishment to a sensory manifestation of the performative forces integral to the building's genesis. Thus, when green architecture serves as a design approach or a form-finding process, it simultaneously constitutes the building's ornamental vocabulary. Besides, ornament retains its symbolic character, thus the lush greenery on an otherwise austere façade or a bio-inspired façade functioning as a climate control device effectively communicates architecture's response to the environmental crisis.

Given the scarcity of literature on the new status of nature as an architectural ornament, this paper represents a modest step toward developing a comprehensive theory on the subject. The field requires in-depth analyses, case studies, experimental research, and, most importantly, innovative theories to foster new interpretations. Thus, this study is anticipated to encourage further research on the employment of nature as contemporary ornamentation.

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