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Research Article

Essence and proposals of organic architecture

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ABSTRACT

The term "organic architecture" describes the use of living or organic elements to design architectural shapes. The goal of organic architecture is to create forms that are more like nature itself than imitations of natural forms. Nature is a source of inspiration for many engineers, designers, and architects. Innovation and the rise of architectural quality are the goals of research on "natural constructions." The use of life sciences language in the context of architecture offers fresh viewpoints on architectural and design innovation. The comparisons between nature and architecture are the main topic of the study. Since the beginning of time, nature and living things have lived in harmony with humans. However, natural species have always been the source of inspiration for people. Sometimes these interactions result in various and incompatible paradigms. As early as 1908, Frank Lloyd Wright used the term "organic" into his architectural ethos. He invented organic architecture to describe his architectural concepts. It was a continuation of his instructor Louis Sullivan's theories, whose phrase "form follows function" became the guiding principle of contemporary architecture. Louis Sullivan was one of the role models Wright looked up to and who influenced him. Wright supported both the natural development of the environment and the adaptation of architecture to the environment. In order to prevent conflicts between architectural designs and the environment, Wright places a strong emphasis on allowing architecture to fit in seamlessly with its surroundings. Wright has embraced the chance to instruct and counsel the architectural community on the value of adhering to the laws of nature in terms of construction practices and the principal architecture.

1. INTRODUCTION

Organic architecture is an architectural ideology that creates harmony between human living and the natural environment. This is achieved by employing design strategies that aim to be empathetic and well-integrated with site, so that the surroundings, furniture, and buildings all make a harmonious whole. In the organic movement, an architect is known as an organicist. Frank Lloyd Wright, an American architect, was one of these organicists. The inclusiveness of Wright's design process also reflects organic architecture[1]. The structure is characterized by the repetition of materials, motifs, and fundamental ordering principles. The idea of organic architecture refers not only to the buildings' literal relationship to the natural surroundings, but how the buildings' design is carefully thought about as if it were a unified organism[2].

The term "organic architecture" refers to the careful consideration given to the design of the structures as if they were one unified organism, rather than only the buildings' physical connection to their natural environment. Wright's structures use geometry to create a unified mood and theme. The design of each element of a building, including the windows, floors, and even the individual chairs designed to fill the space, is also essentially organic architecture. Everything is interconnected, reflecting nature's symbiotic organizing systems[1].

Other modernist architects in the U.S., Europe, and other parts of the world had complimentary and frequently conflicting ideas about how to best imitate nature in architecture. Louis Sullivan, Claude Bragdon, Eugene Tsui, and Paul Laffoley were important personalities in the United States, while Hugo Häring, Hans Scharoun, and Rudolf Steiner stand out among the European modernists[3].

2. ORIGINS OF ORGANIC ARCHITECTURE

Famous American architect Frank Lloyd Wright is credited with coining the term "organic architecture," referring to his organically integrated design philosophy as a new paradigm in architecture. In order to establish a healthy yet sustainable

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ecosystem, Wright, a keen observer of the natural world, took inspiration in the forms and procedures associated with nature. Wright spent his teenage years working on his uncle's farm[4]. He was attracted by the farm's natural liveliness, which included a variety of farmed crops, undeveloped woodland regions, and Wisconsin's vast expanses in a river valley. Wright was raised in a basic rural Wisconsin community. Wright made his discovery of "organic architecture" in this location[3].

2.1 Organic Architecture and Frank Lloyd Wright

"…form and function should be one as it is in nature."
Using the reality of natural laws, Frank Lloyd Wright created his concept of organic architecture. Additionally, he developed nine architectural principles that mirrored the evolution of his organic philosophy. The principles talked about how human scale relates to the landscape, how to create greater space using new materials like glass and steel, and how to construct a building's architectural identity, which was his response to the idea of style [4]. Wright outlines several key design tenets that should be followed when creating a project, including unity, simplicity, harmony, continuity, plasticity, integrity, order, and tenuity.
Unity in organic architecture refers to how parts of a whole are connected to each other. Each element should be able to express its unique personality while also being included in the total. This concept also refers to the unity of site, structure, shape, construction, furnishing, decorating, and planting in Wright's architecture. It is possible to create unity in architecture, similar to how nature organizes its different elements into a unified entity.
Every living thing evolves according to the laws of **simplicity** in nature. Wright aimed to use materials and construction techniques in accordance with this concept. Wright argues that constitutional order is the essence of simplicity; to reach a level of simplicity, a part must exist in harmony with the whole[5].
In nature, all living things live **harmoniously** with their surroundings. They communicate with one another. The integration of the pieces is referred to as harmony. No component of an organic thought is superior to the other parts. They are integrated into the unified whole. No enclosed area is found in nature. This phenomenon can be seen in Japanese architecture. Space in Wright's architecture allows people to move between the interior and outside. Freedom in space is what **continuity** means.
Plasticity became a component of the continuity principle. He referred to it as the skin that encased the skeleton. Wright created a seamless structure as opposed to the traditional post and beam building style.
Integrity is the quality of a person to be honest and persistent in what they feel to be correct. Buildings have a sense of vitality thanks to Wright's understanding of integrity. The building's manifestation of individuality demonstrates its regard for and sensitivity to itself, its environment, and life within itself.
Wright's buildings have an amazing geometric **order**. He used a unit system when designing his buildings. His designs were produced using a grid approach. According to the dictionary, **"tenuity"** is to be thin and slender. Wright, though, referred to this as the "freedom of architecture."[5]

2.2 Essence of Organic Architecture

Wright's concept of organic design is often understood as organic architecture. In general, the building's materials, structures, ideas, and ordering principles tend to repeat themselves, giving the building a more holistic and designed feel. The concept of organic architecture is interested not only with the physical link between a structure and nature, but also with how a building's design is put into practice to encourage the unity of the building and nature as a "unified organism." Every component of the building, including the floors, furniture, and even the windows and doors, exhibits organic architecture. Each element appears to have a connection to another, reflecting the symbiotic arrangement of nature. The goal of organic architecture is to harmonize the internal and outside spaces while preserving a peaceful atmosphere[6].

2.3 Propositions for Organic Architecture

When assessing the value of architecture, simplicity and repose are important factors to consider. The number of distinct rooms must be decreased, and they must be redesigned as open areas, to simplify structural design.
Furniture, doors, and windows should blend in with the design of the building.
A structure should look as it has grown organically from its surroundings and that it has been created by nature itself.
The primary color of the structure should be drawn from the colors of fields and forests to produce a natural look[6].

2.4 Purpose of Organic Architecture

1. To create a unified ecosystem: Organic designs, which are ecosystems unto themselves, do not leave a structure's or a person's footprint on the underlying landscape. Architecture that is organic aims to organically blend in with its environment.

2. To interact with natural life: Nature has a fundamental impact on organic architecture. Because reliance was a major element in many of Frank Lloyd Wright's constructions, he took into consideration rocks, water, and plant life.
3. To chart a journey through space: Light, sky vision, and the surrounding environment all have an impact on flow. The location of windows is determined by where the sun shines the brightest, and open floorplans produce situations that are less interrupted by a series of rooms[7].

2.5 History of Organic Architecture

The idea behind organic architecture is as ancient as nature itself; it promotes the idea that all living things should dwell in harmony and assist one another's development. Wright's inclusive design approach also represents organic architecture. The recurrence of elements, themes, and basic organizing ideas in the structure is what gives it its distinctive character. In addition to a building's physical relationship to its surroundings, organic architecture refers to how attentively the building's design is considered as if it were a whole organism[5].
It is also basically organic architecture when each part of a structure—including the windows, flooring, and even the specific chairs made to fit the rooms are created. Everything's interconnectedness reflects nature's symbiotic organizing systems. In the United States, Europe, and other regions of the world, various modernist architects had complementary—and usually divergent—ideas about how to most effectively mimic nature in architecture. David Pearson, a planner, and architect released a set of criteria for creating organic architecture. These principles are included in the Gaia Charter for organic architecture and design[5].
It states Let the design:

- be influenced by nature and be diversified, healthy, sustainable, and preserving.
- emerge from the inside seed, like an organism.
- 'Begin again and again' and 'live in the continuous present'.
- Be flexible and adaptive while adhering to the flow.
- fulfill your physical, emotional, and spiritual requirements.
- grow beyond the location" and be special.
- Enjoy the playfulness and surprise of youth.
- portray the rhythm of music and the strength of dancing.

3.FRANK LIOYD WRIGHT

Frank Lloyd Wright was a writer, educator, architect, and designer from the United States. Over the course of his 70-year creative career, he created more than 1,000 buildings. Him and his work are modern American architectural icons. Wright was a significant contributor to the twentieth-century architectural trends, inspiring thousands of apprentices with his Taliesin Fellowship and through his works. Wright supported organic architecture, which he defined as design that is in harmony with both people and the environment. Fallingwater (1935), considered "the best all-time achievement of American architecture," is a perfect example of this idea. Wright established the idea of the Usonian dwelling in Broadacre City, establishing what is now known as the Prairie School style of architecture. This was part of Wright's vision for American urban planning. Additionally, he created unique and avant-garde plans for businesses, including workplaces, temples, schools, skyscrapers, inns, and museums. These buildings incorporate interior Wright design features, such as lead glass windows, flooring, furniture, and even dinnerware[8]

3.1 Fallingwater

It is a weekend home created by American architect Frank Lloyd Wright for the Kaufmann family in 1935 and finished in 1937 close to Mill Run, southwestern Pennsylvania. The home's risky construction above a waterfall helped revive Wright's architectural career and made it one of the most well-known structures of the 20th century. In 1964, the house became a museum. Wright's organic architectural ideas are intended to unite people, buildings, and nature so that everyone would benefit from the interaction. Fallingwater was a masterpiece of this approach (Figure 3).
Wright thought that architecture must not only fit easily within its natural landscape, imitate its shapes, and utilize its materials, but it must also foster and expose the hidden characteristics concealed within its context. The stony terrain of the location is where Fallingwater blooms as a result. Its concrete terraces float over the waterfalls, respecting its space while bringing attention to the water. The stones below are remembered and highlighted by their orange color and horizontal shapes. The terraces look like they are floating but are cantilevered from the central stone chimney of the building. Wright thought that a fireplace should be the center of every home, and his designs frequently had one. Wright planned for the building's circulation to seem compressed when inside and expanded when nearing the outside. As a result, the building's inner areas are modest and have low ceilings, creating a protected cave in the rocky environment, while the building's

enormous terraces take up nearly half of its space. Natural rocks protrude from the main fireplace, southern light pours in via huge corner windows, and there is constant sound of flowing water. The structure invites nature into all three stores. Wright's meticulous attention to detail resulted in such distinctive elements as a hatch on the first floor oversteps that immediately leads to the streambed below, specially made niches to exhibit the Kaufmanns' art collection, and built-in furniture to complete the area. Wright included the waterfall into the house's design and built it directly on top of it to incorporate it into the Kaufmanns' daily existence. While still competing with the loud sound of the falls, the home was built to enhance the area's natural beauty. The strength of the falls could be heard rather than seen since the sound of the water breaking could be heard continually throughout the entire home. The ribbon windows' steel frames are painted red to resemble the trees, while the concrete is painted a light ochre hue. In doing so, Wright presented an example of "organic architecture," a theory that fosters design-nature harmony. Boulders from the location are integrated into the living room's walls, and a massive ledge of granite protrudes through the floor to form the fireplace's heart[8].

3.2 Step Inside with Frank Lloyd Wright

Wright "not only created the constructions, but what furniture would go inside, what colors and patterns would make up the décor, and, in the circumstances of some of his residences, even what clothing the hostess would wear while entertaining." Along with light fixtures, area rugs, and sofa cushions, his designs included end tables, dining room chairs, and napkins. These interior features were included in almost all of Wright's designs.

- Blurred Lines: Wright frequently used enormous walls of windows to bring the outside in. He sought to "blur internal and external space, where the interior design and furniture would fit the lines of Nature Inspiration."[9]
- Natural Materials: Wright sought to employ regional construction materials to foster a harmonious relationship with the home's surroundings, much as he did with the exteriors of his structures. As may be observed in this guest bedroom, local sandstone and black walnut were used throughout Falling Water.
- Geometric Shapes: Interiors of Falling Water are dominated by rectangular forms. This idea is illustrated by the built-in rectangular seats and the vertically slated room divider in the sitting area of the guest quarters, which is depicted below.

3.3 Taliesin West

the Taliesin West A living memorial to Frank Lloyd Wright's life and work is located outside Scottsdale, Arizona, in the Sonoran Desert. Taliesin West, which was completed between 1937 and 1959, served as both Wright's workshop and school for his apprentices, as well as the winter residence for his and his wife's summer residence Taliesin in Spring Green, Wisconsin. The little-known fact that Taliesin West is the only design of Frank Lloyd Wright where he incorporated American Indian petroglyphs into the architectural design and living experience is one of the many distinctive features of Taliesin West[9].

1. Inspiration for Taliesin West:

In a camp made of redwood and canvas called Ocatilla, Wright and his group resided. Living outside in white canvas sheets provided a visceral connection to the desert, which, with Mrs. Wright's support, led Frank Lloyd Wright to create Taliesin West, a permanent winter camp. Living in the desert, in Wright's opinion, is the kind of spiritual catharsis that a lot of people require. Wright wanted to test out his ideas in a fresh, creative setting outside of Wisconsin. Wright launched a three-year search of the Phoenix region in 1934 to find the property

Construction of Taliesin West in Scottsdale, AZ:

Wright constructed Taliesin West to undertake larger-scale experiments with canvas and natural materials than he had at Ocatilla. In Wright's opinion, canvases would provide the greatest interaction between the building's occupants and the environment. The Fellows and the Wright family spent the first two winters in Taliesin West (1937–1938 and 1938–1939) in tents without running water or electricity. The apprentices paved the roads and cleared the land between 1937 and 1938. The following winter of 1938–1939 saw the start of construction on Wright's "Office," also known as the Drafting Studio where the Fellows worked, the Kitchen, the roomsfor the head apprentices Eugene Masselink and William Wesley "Wes" Peters, the Sun Trap, which served as the Wrights' temporary residence, the Loggia, an outdoor gathering area, and the Kiva, a small theater. Construction on the Wrights' primary living space, which included the Garden Room, the Bell Tower next to the Kitchen to announce meals, and the Dining Room, was finished by 1939–1940[8].

2. Interior Explanation:

- Drafting Studio and Pergola (1938-1957): The Drafting Studio was the focal point of Taliesin West and the first permanent structure in the complex. It served as the apprentices' main workplace as well as a meeting ground for meals and music. It has strong brick walls that support an angled roof made of a series of C-shaped redwood beams that was formerly topped with movable canvas panels (with translucent plastic ones). The

design also made extensive use of natural light. Wright created a ceiling out of transparent canvas. (Later replaced with plastic because to the extreme wear from the Arizona sun)

- Wright's Office (1938-1958): Wright's office is situated at the western end of the Historical Core and was entirely rebuilt twenty years after it was initially constructed in 1938. With its strong stone walls, sloping redwood frame roof, and canvas paneling, the office has a Drafting Room-like appearance.
- The Loggia (Dining Room) (1938-1958): The Loggia was originally intended as an outdoor dining area, but it was later transformed into a dining room in 1950, and in 1958 it was also extended with a glass and steel enclosure. Wright did not build the brick walls to the ceiling and intended the roofing to extend past the walls, blocking the sun's rays yet enabling horizontal light to enter the space.
- Wright's Living Quarters, and Garden Room (1940): contains a kitchen, a bathroom, a sitting area, a gallery, two bedrooms, and entrance to a walled private garden. The Garden Room leads onto an outside terrace, the Sunset Terrace, and is a bright area with a sizable, slanted ceiling made of redwood and canvas.
- Movements Pavilion (1954-1964): The Pavilion is a 126-seat theater and special events venue with tiers of red seats and a stunning translucent gable top. The theater offers its patrons what has been referred to as "95% acoustic perfection" and is constructed with six sides out of the typical rock-concrete mixture in the shape of a crooked hexagon. Even the slightest whisper from a speaker on stage can be heard by someone seated in the back row
- The Cabaret (1950): It is an underground theater that hosts live shows and movie screenings. Originally, it had tiered seating for roughly 50 people. Desert Masonry was used to construct the walls, roof, and odd decorative devices. Steel beams were also used to reinforce the roof slab. The cabaret theater serves as a formal dining room for distinguished guests as well as a place that may be transformed for guest entertainment.

3.4 Casa Mila, By Antoni Gaudi

Between 1905 and 1910, Antoni Gaudi, a Spanish architect, designed this project in Barcelona. Audi was a pioneering architect in the Art Nouveau era. His architectural style is distinguished by its unique linework, with Casa Mila's exterior curve serving as a prime example. The exterior shape of Casa Mila defies the exterior style of conventional buildings. The vertical wall's wave pattern had disrupted the traditional aesthetic sense of modern architecture. The honeycomb-style parts and undulating outer stone walls, which seem to heave itself from the earth, made the design divisive when it was constructed. Known as La Pedrera (stone quarry) because it resembles an open quarry in appearance, the building features forms drawn from nature.that Gaudi's use of natural elements in his design is distinctive. Gaudi's architectural style has an organic shape because he was inspired by natural elements like plants, animals, and even sea waves. In other words, the architectural designer's own ideology and the projects' distinctive design make the entire structure unusual. Gaudi's love of nature and the influence of Art Nouveau may be seen in the curvature of Casa Mila's exterior. It has a wave-like shape and a peculiar curve as a result. The apartment is also impacted by the distinctive annularity of the building structure, which exhibits the distinctive curvature of the exterior curve, making the entire apartment in a large number of Art Nouveau buildings more abundant in natural element characteristics and possessing more features. Gaudi's naturalism and the wave annularity of the building's construction make Casa Mila a naturalized and distinctive work of architecture[9].

4. CONCLUSION

The designs of organic structures are as follows: nature-inspired, healthy, sustainable, diversified, flexible, and adaptable; they grow out of the land; they satisfy social, physical, and spiritual demands; and they offer natural energy such as natural light, wind, as well as ventilation. Since there are practically any straight lines in organic designs, it is clear that the structures have merged with nature and evolved spontaneously rather than looking artificial with straight lines and regular shapes. In addition to using environmentally safe materials, organic designs make the most of the local natural resources. Organic architecture, which has been used in a number of locations like The Falling Water, enables human habitation to blend with the environment.

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Conflicts Of Interest

The author's affiliations, financial relationships, or personal interests do not present any conflicts in the research

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