

The Connotation of Organic Architecture on Contemporary Architecture of Jordan/ Case Study: Wild Jordan - Ammar Khamash

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Abstract

This research aims to discuss the significance of organic architecture on contemporary architecture in Jordan by investigating the integration of architecture and nature as essence of organic architecture, in order to find better solution from nature instead of recreating it, Ammar Khamash as Jordanian Architect is selected to investigate the applications of Organic Architecture principles established by Frank Lloyd Wright, to express Khamash's thoughts and how match his works with some values like the relation of the building with its environment, using of materials and architectural elements.

Keywords: Organic architecture, Frank Lloyd Wright, Ammar Khamash, Context, Nature, Principles, Jordan.

1. Introduction

1.1 Man and Nature

God is the creator and man the explorer, human always has to explore the nature in order to create a new order (Mehr, 2011).

"We are in line with the laws of nature, these laws rule our acts and all our actions are based on them." Le Corbusier (1887-1965)

Nature and man are components of the universe are a large collection, including other components that are in correlation with each other based on a hierarchical order figure 1, which component and the whole complete each other (Mehr, 2011).

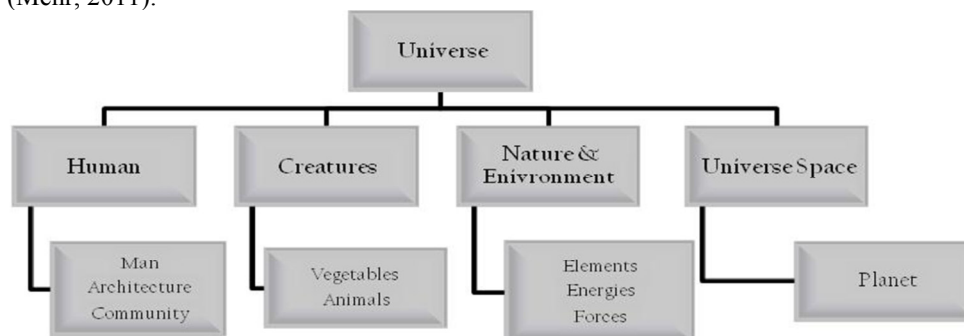


Figure (1): Diagram of the world, Source: (Mehr, 2011).

Table (1): Man's Relations with Nature.

Exploitation of nature	Using available elements of nature
Utilization of nature	Manipulation and transformations in the natural elements into desired shape
Symbolizing from nature	Using elements of the nature in a symbolic way and give it special meaning

Source: (Mehr, 2011).

Man tried in several ways to adapt with the element of environmental friendly design, till the industrial revolution but he was didn't neglect his environment (Matrouk, 2016), but connections between man and nature (the dominancy of nature or man over each other) can be divided into historical periods; some researchers called it organic stages according several previous studies as shown in table (2).

Table (2): Organic Stages.

Organic Pattern (Hunting or Stone Age) man was dominated by nature /security and survival.	people as subjugated to nature	High-organic (Man with Nature / Nature dominance over Man)
Ultra organic from security to luxurious	people as over nature	Low-organic (Man's dominance over Nature)
Dominance on nature (Age of Industrial Revolution) benefits from the nature and damage the nature.		
Quasi-industrial organic pattern	People as an inherent part of nature, like animals, trees- in harmony with the environment.	Semi-organic (Man and Nature).

Source: (Altman & Chemers, 1984; Mirzaei).

1.2 Architecture and nature

Architecture is the first man manifesto that creates it's as nature, Comply with the provisions of nature rules, Gravity, static and dynamic physics rules.

"A grand fate displays nature creatures and gives up a balanced, developed, changed and union thing secret." (Le Corbusier 1887-1965).

Inspiring from nature instead of recreating from it, studying nature principles and their stability to find better solution serves world needs. "A creative architecture should accept all its work differences: discipline and freedom, mind and creativity, nature and technology" (Mehr, 2011), Caves were the first natural form of architecture made by nature itself, but with the evolution of architecture Naturalism or integration with nature has appeared in since many years ago (Wright, 1939), ancient Egyptian and Greek studied from nature and human bodies and obtain them geometrical shapes, harmony of proportion, and spirits of land and space, while Romans believed in the human body in giving perfect geometry square and circle using arch vaults and dome. In Islamic world, the animal forms where strictly prohibited. They can use only mathematic and abstract geometry from plants form, whereas the gothic architecture used both circles and plants combined together in making parabolic arches as it take more loads such as Antonio Gaudi: playing with form and lines, plasticity and curved building. In the mid-18th century the relationship between nature and architecture was defined by an American sculptor Horatio Greenough (P.Sijpkas, Bin Li,Lizhou Lin, 2002). In the modern age as a reaction to rationalism of modern wisdom, architects like Louis Sullivan then Frank Lloyd Wright was leader in organic architecture that will be discussed in the next section. Nowadays it is called Blob architecture: different way of thinking because of the new technology and higher level of thinking (Dindone, 2011).

2. Organic Architecture

2.1 General Definition

"Relation of parts to the whole" is the expression representing Organic architecture, in which each component of the composition is important and related to each other in the frame work of generating idea (Pearson, 1991). There is another definition that is derived directly from nature (of the earth) is expressed by three components: materials, forms and laws see figure (2).

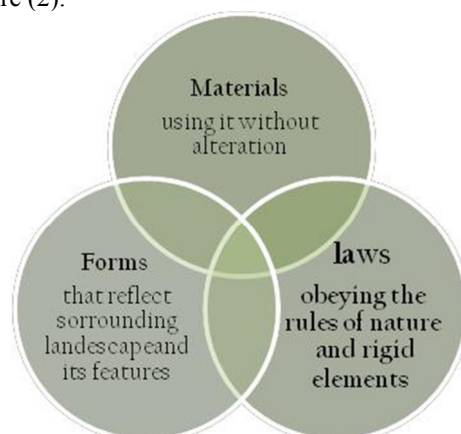


Figure (2): The Natural Definition of Organic, Source: (Pearson, 1991).

Using materials from nature without alteration and modification example of wood, stone, soil and water, also creating forms that reflect the features of surrounding landscape, and obeying laws that building the structure in order to get insight into new design solution example laws of physics ,this rules are direct imitative and unoriginal of the nature of God (Pearson, 1991). Organic architecture represents a way of thinking about design that go beyond the familiar, Ecological and individual (Brian L.Powel, 1995). According to Frank Lloyd Wright" organic is a combination of the whole assemblage and about Organic building believed: It is built by people from inside of the earth with consideration of their arrangements and with time. Place, environment and aim." (Mirzaei).

2.2 Background

Organic architecture roots in Romantic philosophy in the late 18th and 19th century in the reaction to rationalism of modern age (Mirzaei). In The 20th century in parallel with the international style there is a reflection of values of standardization and industrialization designed to create harmony of the artificial environment created by humans to the nature, representing a new thought through re-emergence of the organic design (Brian L.Powel, 1995). The first organic architect like Viollet-le-Duc and John Ruskin were the crucial influences on Frank Lloyd Wright (Brian L.Powel, 1995) who later introduce the phrase organic on his architectural philosophy then used the term _organic architecture' in an article for Architectural Record in August 1914 (Wright, 1974). Wright changed his teacher Louis Sullivan's slogan "form follows function" into "form and function are one," using nature as the best example of this integration (P.Sijpkens, Bin Li,Lizhou Lin, 2002). In 1950s and 1960s organic architecture went through remarkable revival by pioneers of the modern movement such as Le Corbusier and Alvar Aalto They transformed its original rigid geometrical character into a livelier organic direction. More specifically organic architecture doesn't mean the imitation of nature's forms, rather a reinterpretation of nature's principles. This includes respect for the properties of the materials and for the harmonious relationship between form and function of a certain building. Furthermore, organic architecture strives to incorporate the spaces into a coherent whole where site and structure come together harmoniously.

2.3 Organic Architects

Each architect has a different approach to organic form and philosophy; here are some of attributes of some organic architects.

Table (3): Example of Some Architects and Main Attributes in Organic Architecture.

Architect	Period	Main attributes in organic architecture
Louis H. Sulivan	1856-1924	Concluded that form follows function. Organic ornamentation.
Frank Lloyd Wright	1867-1959	The father of Organic Architecture. His principles will be elaborated next.
Antoni Gaudi	1852-1926	Integration structure, materials, and sculptural form. Developing a natural geometry of double curved surfaces.
Rudolf Steiner	1861-1925	Inspired by Goethe principles in morphology and the metamorphosis of plants.
Bruse Goff,	1904- 1982	"It is a continuous flow of space where in neither walls nor floor and ceiling is parallel".
Douglas Cardinal	1934	Making relationships on the site between natural elements.
Ludwig Mies van der Rohe	1886 – 1969	Using basic materials. Integrating form and function. The Concept of skin and bone.

Source: (The Author, 2016).

2.4 Principles of Organic Architecture

Organic Architecture involves respecting natural materials (wood should look like wood), blending into the surroundings (a house should be of the- hill, not on it), and it is an honest expression of the function of the building (a bank is not look like a Greek temple) (Mirzaei). In 1957, A Testament, the book was published by Frank Lloyd Wright transcend his personal expression, philosophy of his architectural experience; he set a group of principles that reflected his organic philosophy. In an essay entitled "The New Architecture: Principles". (P.Sijpkens, Bin Li,Lizhou Lin, 2002). FLW principles discussed the use of new materials like glass and steel to achieve more spatial architecture, the relationship of the human scale to the landscape, and the development of a building's architectural "character," which was his answer to the notion of style.

Table (4): FLW Principles.

Building and Site	The relationship between the two can be : <ul style="list-style-type: none"> • Similarity (prairie house), or contrast (Fallingwater). • In natural settings, the buildings may open out (Usonian houses), and in urban settings, turn inward (Wax Buildings).
Materials	Only a few materials are used, both inside and outside, Each expresses originality of its color, texture, and strength.
Shelter	A building should convey a sense of privacy or protection against the elements.
Space	The interior space conveys the exterior form which functions are never simple rectangles but are broken up vertically and horizontally (alcoves, L-shapes, lowered ceilings, and decks) , function as part of a series each space can introduce another.
Proportion and Scale	The human scale should be convenient with the building and its furnishings
Repose	It is achieved by simple architectural masses that reflect the organized spaces within site.
Grammar	Each building has its vocabulary of pattern and form. All parts of the building from the detail to the overall share the same language.
Ornament	When it used, should be as an integral part of the material, not applied. Examples are patterns cast in concrete or carved in stone, leaded glass panels, and tile or glass mosaics.
Human Values	—Human use and comfort should have intimate possession of every interior—should be felt in every exterior. FLW
Simplicity	Simplicity in art is a synthetic quality in which we may see evidence of mind, breadth of scheme, wealth of detail and withal a sense of completeness found in a tree or flower.
Mechanical Systems and Furnishings	Furniture should be built-in as much as possible. Sculpture and painting have to become elements of the total design.

Source: (The Author, 2016).

3. Methodology

In order to achieve the main aims of the research, it's important to understand the Organic Architecture and its principles and Frank Lloyd Wright, so the research is attempting to investigate the concepts and definition of organic architecture specifically Wright's philosophy. The research will be descriptive and analytical (inductive) by taking case study from contemporary architecture in Jordan, the architect Ammar Khammash was selected to discuss one of his works resembles Wright's approach in organic architecture. The necessary data and information of selected projects has been collected by the following methods: - Going back to books, journals, websites and any references that containing any information about the selected projects to get to know their specific characteristics and design features. - Architectural analysis and personal observation of researcher for matching with the principles of organic architecture.

4. Representation of Organic Architecture Values in Contemporary Architecture in Jordan / Ammar Khammash

Ammar Khammash is an architect practicing projects associated with conservation and issues related to nature, botany and anthropology, he graduated from the school of architecture at the University of Louisiana in 1987 and now, he is teaching graduate design courses at Columbia University in New York (Jarrar, 2013).

4.1 Values of Organic Architecture in Contemporary Jordanian Architecture

Khammash don't believe in style but believe that Ecology is the ultimate architect rather than culture; this distinguishes any region over another and takes the design decision (Jarrar, 2013). The architecture for Khammash is a continuation of nature as he said: of how creatures and human creating their life needs, he believes with the analogue between nature and architecture as source of inspiration (Jarrar, 2013).

Table (5): Ammar Khammash Principles.

Adaptability and continuity	Face the exploitation of nature
Diversity and variety	He linked the architecture to ecology not to religion.
Innovation	Khammash rejected style and previous solutions because they don't suit contemporary challenges and demands, and indicate that analogical relationship between architecture and plants is a vital source of inspiration within the environmental challenges the world is currently facing.
Unity	The ecology is the ultimate source of unity across different geographies.
Respect for the environment	He expressed concerns for the limits of resource use.
Methodology not style	The design of architecture is about methodology rather than specific style, and he described the methodology in six processes: Look for design precedents within a specific geography, Reinterpretation design precedents, Dynamic nature of design methodology, Accumulated nature, No concept, Multidisciplinary expertise involve when needed.

Multidisciplinary expertise involve when needed.

Source: (Jarrar, 2013).

4.2 Case Study: Wild Jordan Nature Center / Khammash Architect

Client: Royal Society for the Conservation of Nature

Location: Fawzi Al Ma'alouf Street, Amman, Jordan

Built Area: 1'546 m²

The checklist below checklist for the wild Jordan center In order to make matching to the FLW principles in organic architecture:

1. Building Site

- and
- Challenging site with edge dropping seven floors which the project produces the quality of drop by treating the vertical element, Response to the steepness of the site influenced the vertical arrangement of physical and visual flow.
 - The building stands on a bare column structure showing respect for the existing natural environment.



Source: (Khammash architects, 2016/ edited by author).

2. Materials
- Using environmental friendly local material: traditional handicraft made by local society.
 - Only a few materials are used, both inside and outside, each expresses originality of its color, texture, and strength.
 - The use of new materials like glass and steel to achieve more spatial architecture.



Source: (Khammash architects, 2016; Nature Centre Presentation Panels, 2007).

3. Space The whole building can feel like a living tree with a very function as a branch always lighting and ventilation. Separated and connected with bridges.



Source: (Khammash architects, 2016/ edited by author).

4. Repose The cubical form of the surrounding context.



Source: (Khammash architects, 2016/ edited by author).

5. Grammar

The project treats the site as a building has elevations and massing rather than an empty plot, all elements have one language.



Source: (Nature Centre Presentation Panels, 2007).

6. Ornament

Ornament is an integral part of the material, not applied. Carved stone.



Source: (Nature Centre Presentation Panels, 2007).

7. Human Values Project about enriching _activity not architecture_.

8. Simplicity

The project interacted with the site and context: rectangular four story mass parallel to the street, two towers branching from it and three main functions: studio, public spaces, café and terraces.

9. Mechanical Systems and Furnishings

Built in furniture, sculptured elements from the design itself.



Source: (Nature Centre Presentation Panels, 2007).

5. Conclusion

Ammar Khammash architecture enjoy the integration between his architecture and nature also represents the principles of organic architecture in general specifically Frank loyId Wright's principles by considered the principles of FLW is not a style but philosophy and a way of thinking, respecting the site, elaborating material in specific way, using some elements are some of these principles. The respect that Khammash showed in his work by applying the values of adaptability and continuity, Innovation, Unity where the nature is a source of inspiration are obvious in most of his works, to make sure that persist the natural context lead to successful design.

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