



## Analogical Design - An Evaluation in the Context of the Iconic Structure Relationship

**Assoc. Prof. Dr Emine YILDIZ KUYRUKÇU<sup>1</sup>, Şeyma Nur GÜMÜŞ EZDEMİR<sup>2</sup>**

<sup>1</sup>Konya Technical University, Faculty of Architecture and Design, Department of Architecture, Konya, Türkiye.  
ekuyrukcu@ktun.edu.tr

<sup>2</sup>PhD Student, Yildiz Technical University, Institute of Science and Technology, Department of Architecture, İstanbul, Türkiye.  
seymangumus@gmail.com

### Abstract

Architectural design; It is a visual communication product that reflects the feelings and thoughts of the designer and connects with the user. The phenomenon of architecture uses a unique language for this expression. One of these architectural languages is analogy. Analogy in architecture is a method of inspiration that is used for the purpose of creating meaning and contributing to the production process, mostly trying to reach creativity. From past to present, architects have used analogy in their designs in order to be original. Today, unusual and innovative iconic structures often include analogy in designs for the purpose of being original and transcending the ordinary. Iconic structures are structures that have a strong associative meaning, enable a form or concept to remain in the minds of users. In order to provide this symbolic value, analogies are frequently used in iconic architectural design.

Within the scope of this study, the concept of analogy, which has an important place in architecture, was discussed in detail, how it was perceived in the historical process and how it was classified by experts in this field, a literature search was conducted, and a new analogy classification was developed by considering the concept of analogy from a new perspective. It is seen that recent hit architects frequently apply to analogical design in their iconic structures. In this context, in order to define the iconic building-analogy relationship, the definition of iconic building, the criteria that make up iconic buildings, the importance of iconic buildings for the city were discussed and 16 contemporary icon structures designed in the 21st century were determined and classified with the table developed within the scope of the study. In order to obtain information about the selected structures, a comprehensive literature search was conducted; Information about the buildings, architectural design stories of the buildings, sources of inspiration were researched, and expert architects were interviewed about the buildings. In the light of all this information, the buildings were classified in accordance with the new analogical classification table and determinations were made in the context of the iconic building-analogy relationship.

**Keywords:** Analogical design, Analogy classification, Communication in Architecture, Iconic structure, Analogical classification of iconic structures

### 1. INTRODUCTION

Meaning in architecture is a hybrid concept that is open to various perspectives, varies from person to person and can be discussed on different planes. In architectural designs, a multitude of different relationships are established, from formal constructs to semantic constructs, from functional requirements to historical and environmental references. In order to interpret these complex relationships, it is necessary to decipher the formal and conceptual essences. At this point; the concept of "analogy", which is one of the concepts frequently used in philosophy, literature and linguistics, can be used as a reference for communication in architecture. The Grand Larousse Dictionary and Encyclopedia (1986) defines analogy as follows: "Analogy is the resemblance between things that exhibit similar characteristics, although they differ in essence." Analogy is a phenomenon that describes an object, item, property with another concept that is most evocative or most closely



similar. Analogies in architecture are forms of expression that have an important role in the communication between the building and the users. Designers turn to different analogical sources of inspiration in the design of architectural products. These sources of inspiration can be animate and inanimate beings in nature. In designs, the final product either resembles the object of inspiration in form or is conceptually in harmony with the object of inspiration. The emergence of new designs by imitating animate and inanimate beings in nature is not a new concept. Analogy is a phenomenon that has always existed in architectural design from past to present.

Nowadays, changes have also occurred in architectural design strategies with the impact of factors such as the development of technology, changing economic order, changing social life, increasing intercultural transfer, and the expectations of the city and the user. The desire of designers to achieve better or to make new, never-seen designs is one of the reasons for change in the field of architecture. Architects trying to keep up with the changes experienced as a consequence of the differentiation of the understanding of architecture have started to shape their designs in this direction. Architects are involved in the race to create icons between cities, which is one of these design strategies, with the aim of designing contemporary iconic buildings, becoming icons, becoming stars. Nowadays, contemporary iconic buildings have replaced the historical monuments of the past as the central focal point.

Iconic buildings are structures that attract attention in cities, support socio-cultural life and contribute to the city economy. Architecture, which is affected in many dimensions from design processes to materials and construction systems; especially by addressing intellectual production and meaning in architecture in different dimensions, examples of "iconic buildings with analogical features" are frequently encountered. Architects, who have recently started to see analogy as a means of communication in the design of architectural structures, frequently resort to analogical design through inspiration from nature in the shell design, structure design, material-texture design or functioning of iconic buildings. 'Analogical design' plays a significant role in the race to be 'unique and iconic' in architectural design. It is an undeniable fact that there are design concerns such as form, aesthetics, uniqueness, keeping up with the times and sustainability in architecture. In the race to become an icon in architectural design with globalization, architects who have the idea of being unique and doing what has not been done often resort to emulation of nature and analogical design.

### **1.1. Purpose and Method of the Study**

Architectural design is a visual communication product that reflects the feelings and thoughts of the designer and establishes a connection with the user. The concept of analogy in architecture has been classified differently by researchers from past to present. However, when the literature is examined, there is no comprehensive classification of analogy that contains all current examples. In this study, a new '*new analogical classification system*' was developed by analyzing and synthesizing the classifications made from past to present within the scope of the study in order to fill this gap.

In addition, in the literature study, no study was found that analyzes the relationship between analogy and iconic structure, which answers the questions prepared to determine why and how analogy is used in iconic building design, which is frequently used by today's architects. These questions are "*Why does the architect make analogical design? Why and how do architects use analogical design in the design of iconic buildings? What are the criteria for being an iconic building? Why do architects design iconic buildings?*". For this purpose, the relationship between icon structure-analogy was discussed within the scope of the study and in the field survey, '*16 internationally recognized icon structures designed in the 21st century with analogical features were identified and the identified icon structures were classified with the new analogical classification determined within the scope of the study*'.



Cleo Broda's (2006) criteria for determining iconic structures were taken as the basis for the selection of 16 contemporary iconic structures with analogical features, which are the main material of the study. According to these criteria, iconic buildings were selected;

- Unprecedented in terms of design language and symbolic meaning value, innovative, astonishing structure, form and material,
- Showing the essence and architecture of the era in which it was built,
- An astonishing design product, where a new style is tried,
- It was designed by star architects who are well-known and famous,
- It has a large scale,
- Known by everyone,
- Structures that support the branding of cities and contribute to their socio-economic income in a cultural sense through tourism and support the urban image have been selected.

## **2. THE RELATIONSHIP BETWEEN ICONIC STRUCTURE AND ANALOGICAL DESIGN**

In recent times, iconic buildings with their search for different forms, structures and materials have emerged with a wave of globalization spreading rapidly all over the world. Iconic buildings are products that have created an individual language, that contain differences among similarities, that are effective and surprising with their unfamiliar forms and marginality. Jencks (2005) lists the qualities of iconic structures as having surprising shapes out of the ordinary, aiming to be great, sanctifying everything new, containing incomprehensible meanings and codes, and the recognition factor. In addition to these, Jencks defines that in today's age, where everything loses importance very quickly, the only way for a building to become iconic is if it manages to be constantly on the agenda (Jencks, 2005).

Iconic structures are those that have a strong associative meaning, contain symbolic and semantic imagery, and enable a form or concept to remain in the memory of users. In order to provide this symbolic value, analogies are frequently used in iconic architectural design. Analogies have an important place as a type of communication in architectural design. Iconic buildings are internationally recognized structures designed with the aim of making a global impact through star architects; through analogies, they point to globally accepted concepts and signifiers that evoke the same meaning in individuals.

Iconic design involves designing through symbols. Iconic architectural designs are symbolic structures. Sklair (2006) defines a symbol structure in two ways; the first is that the structure should be known by everyone, and the second is that the structure should have aesthetic significance that can be identified as a symbol. Some mysterious architectural elements must be used in order for the forms of iconic buildings to be internalized by individuals and the impression they leave on them (Jencks, 2005).

Iconic buildings, which participate in urban life as a unique singular artifact with the meanings they carry in the time-space fiction and the conceptual expression of the space, are innovative architectural designs that can freely express their formal and conceptual meanings, show analogical features with the mysterious codes and unique indicators they carry, and capture their own dynamics. Due to these analogical features, they are structures that create innovative and unique spatial spaces. Iconic buildings from the past to the present have shown analogical features, sometimes referring to the past, sometimes to a symbol, and are artifacts that have taken place in people's memories and have become the center of attention. Historical iconic buildings have become symbols with the force they represent in their era.

Sklair (2006) analyzes iconic architecture in two groups. The first group includes emulated buildings that imitate structures and application methods that have been found successful in the past and adapt a certain sample, and this group is called Iconic I. Building iconic

mosques that imitate the architectural style of Mimar Sinan is an instance of this group. The second group includes buildings that are distinctive and globally recognized for their uniqueness, using symbolic expression and signifiers as a reference in their design. The buildings in this second group, called Iconic II, offer users an extraordinary, astonishing, thought-provoking and memorable spatial experience. As an instance of this second group, the Sydney Opera House can be mentioned. It is a unique building that embodies many different analogies and represents the city it resides in, where new construction techniques were used in its period. While the buildings in the first group are far from symbolism and contextual expression and imitate the past, the buildings in the second group include the analogical ways of expression that architects use to differentiate, the symbolism they use to be unique, and the buildings that seek to make spaces special. Nowadays, iconic buildings mostly belong to the second group and often resort to analogical design approach in order to be innovative, distinctive and carry symbolic value.

Iconic structures are structures with hidden codes, distinct abstract narratives that give a symbolic new meaning to their qualities, and strong expressive expression. In architecture, designers often use analogical narratives not only to be unique and one-of-a-kind, but also to acquire a global reputation. Since the concept of analogy is a way of expression that is open to personal interpretation and evokes different feelings in each individual, it is a way of expression that architects frequently resort to so as to a building that appeals to different cultures and can acquire worldwide reputation. There are many different analogical narrative interpretations for the diverse form of the Guggenheim Museum, which is seen as the beginning of the iconic buildings of our era and the owner of the Bilbao Effect concept (Figure1.).



**Figure 1.** Analogical narrative interpretations drawn by Madelon Vriesendorp for the form of the Guggenheim Museum (Jencks, 2005: 210)

Architects develop unique design languages to express themselves. For instance, Frank Gehry used fish and wave forms in his buildings inspired by animate and inanimate nature. While making this design, he preferred glittering and shining materials (Figure 2.).



**Figure 2.** Frank Gehry artifacts; University of Sydney Business School Building, Louis Vuitton Foundation Building, Hotel Marques de Riscal



Norman Foster, who uses the dome form and circular forms in his designs, designs iconic monumental buildings that appeal to the universal understanding of architecture. When these structures are examined, it is possible to observe the DNA structure, number sequences and traces of animate and inanimate nature. Nature plays a leading role in architecture as it inspires in every field (Figure 3.).



**Figure 3.** Norman Foster artifacts; Clyde Auditorium and Reichstag Dome

Architects prefer the analogical design approach to make sense of the inspirations they receive from nature. Architects design iconic buildings using various codes, signs and meanings that require deciphering. Peter Eisenman and Zaha Hadid, who want to bring the unique beauty of inanimate nature into their buildings, believe in the expressive power of nature and use fluid forms that flow into each other and fractured surfaces found in nature (Figure 4.).



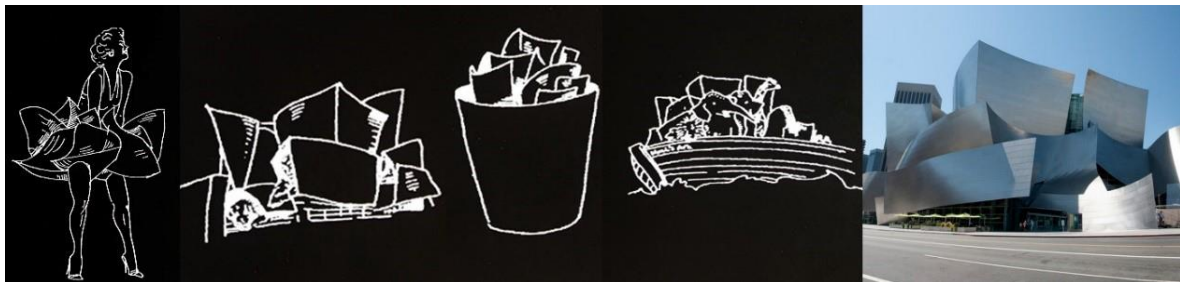
**Figure 4.** Peter Eisenman- Cidade da Cultura; Zaha Hadid- Heydar Aliyev Cultural Center

Iconic and analogical design products that affect people can be defined as structures that hold perceptual and generative forms together, with their forms and symbolic meanings, which have more contextual meaning than a simple narrative. Schulz (1971) emphasizes that these expressive forms convey more meaning than their simple depiction. Depending on the signs and symbols reflected by the forms of iconic structures, the associations, interpretations and analogies derived from the structure point to the symbolic value of the structure. Le Corbusier's famous building Ronchamp Chapel (Figure 5.), which has become an icon, has been open to many analogical interpretations thanks to its signifying form. Some interpreters have likened the roof form to a crab shell, but many various symbols and analogies have been produced from the roof form alone. The roof shape is also reminiscent of symbols such as sail, tent, boat, birdwing, mushroom (O'Toole, 1994). Structures designed by analogy are design products with high associative value and attract attention.



**Figure 5.** Ronchamp Chapel, Le Corbusier's famous building

Iconic buildings, in addition to their visual impact, they are buildings that contribute to the city with their functional fiction and semantic values and attract attention. Iconic buildings designed by analogy contribute to their semantic value with this method of narrative. In addition to its visual appeal, architectural design is an element that gives meaning to the area in which it is located (Pallasmaa, 2011). Analogical design is one of the best representations of trope that adds meaning to the art of architecture. For example, while the Walt Disney Concert Hall hosts art activities, the building itself, which has an analogical design approach, defines its space as a visual work of art (Figure 6.).



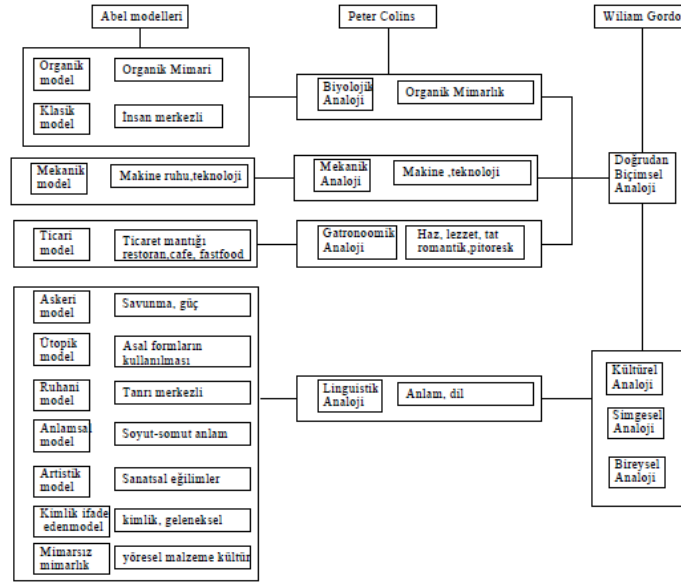
**Figure 6.** Analogical narrative interpretations drawn by Madelon Vriesendorp for the Walt Disney Concert Hall form (Jencks, 2005: 181)

When we look at the development of iconic buildings from the past to the present, meaning and signaling are the purpose of designing buildings. Changes in social lifestyles and economic changes on a global scale have made buildings a way of representing meaning and representation. While in the past making a meaningful structure that represented a power was the goal, today it has become a means to an end. On this issue, Jencks (2005) states that architecture cannot remain indifferent to economic interests and mediatization. He mentions that the purpose of designing iconic buildings is to achieve fame and financial strength and suggests that some methods are used to make the building meaningful, valuable and iconic for this purpose. According to this account, the first way used in the design of iconic structures is to design them with mysterious codes that are difficult to understand in order to increase their semantics, the second way is to use common sign elements together with obscure symbols, and the third way is to design them by referring to historical icons. In iconic structures, semantics, associative value, sign and analogical features have become a tool in the mediatization of the structure.

### **3. A NEW ANALOGICAL CLASSIFICATION PROPOSAL IN ARCHITECTURAL DESIGN AND CLASSIFICATION OF CONTEMPORARY ICONIC BUILDINGS**

The definition of the concept of analogy and analogy classifications according to Peter Collins, Abel, Marc Tassoul and William Gordon, who are experts in this field, were examined. When the analogy classifications made in the past were examined, it was observed that some of the analogy classification titles showed almost the same features and had similarities in meaning.

Özbudak Akça (2011) prepared a table by synthesizing the analogy classifications of Abel, Collins and Gordon, which have similar characteristics (Figure 7.).



**Figure 7.** Synthesizing analogy classifications (Özbudak Akça, 2011)

Özbudak Akça (2011) grouped analogies under two main headings in her study. The first heading is 'direct' and 'indirect' according to the tangible and intangible use of analogies, and the second heading is 'living nature' and 'non-living nature' according to the object of reference (Figure 8.).

1	<i>Doğrudan analogi</i> Biçimsel Mekanik /Mekanik olmayan	<i>Dolaylı analogi</i> Simgesel Linguistik Kültürel
2.	<i>Referans nesnesine göre</i> Canlı doğa Biyolojik Antropomorfik	Cansız doğa

**Figure 8.** Analogy grouping table of Özbudak Akça (2011)

In the literature review, it was seen that analogies have been classified differently by experts from past to present. In this study, analogical classifications were analyzed and synthesized and a new analogical classification table was created from a diverse perspective. In the literature review, it was determined that the analogy should be classified according to the place of use in architectural design in addition to the perception and use of analogy in nature, and a new analogical classification was suggested under three main headings by improving the existing classifications (Table 1).



**Table 1.** New analogical classification proposed within the scope of the study

1. Classification According to the Perception of Analogy	2. Classification of Analogy According to the Relationship Established with Nature	3. Classification According to The Way Analogy is Used in Architectural Practice
Formal Analogy	Analogy from animate nature	Analogy as Shell
Conceptual Analogy	Analogy from inanimate nature	Analogy as Structure
		Analogy as Material-Texture
		Analogy Inspired by Natural Processes as Functioning

In the first main heading of the new analogy classification, in the **Classification According to the Way the Analogy is Perceived**; the reference object of the analogical structure can be read directly as a tangible 'formal' or abstract 'conceptual' as a result of the signifier-signified relationship in architectural designs,

The second main heading, **Classification of Analogy According to the Relationship Established with Nature**, refers to the mimicry of the perfect structure of nature as 'animate nature' or 'inanimate nature' by designs with analogical features,

In the third main heading, **Classification According to The Way Analogy is Used in Architectural Practice**; according to the place of use of analogy in architectural design in general, 'analogy as shell', 'analogy as structure', 'analogy as material-texture', 'Analogy Inspired by Natural Processes as Functioning'.

### 3.1. Classification According to the Perception of Analogy

When architects use the way of expression by analogy, they sometimes evoke the sources of inspiration concretely, while at other times they interpret the sources of inspiration and use them abstractly in their designs. As a result, these designs either resemble the sources of inspiration almost exactly in formal terms or are conceptually interpreted and in harmony with the sources of inspiration.

#### 3.1.1. Formal Analogy

In the architectural form designed with formal analogies, there is a direct expression of meaning. In other words, the reference object to be shown and the architectural product shown are exactly similar. Formal analogies also have explicit meaning. In formal analogies, the image-meaning overlap of the structure and the inspired analogy is almost one-to-one and easily understood by users. But formal analogies should not be confused with object-oriented architecture. In object-oriented architecture, the object of inspiration and the architectural product are identical, the architect does not add interpretation to the design but points to the source of inspiration. What is intended to be conveyed in these designs is clear and social. Since the aim is to be easily understood, the depth of meaning is limited (Figure 9.).





Toilet Museum, South Korea

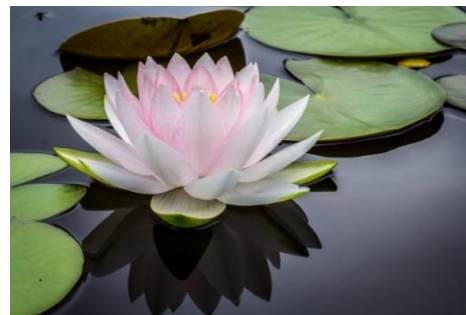
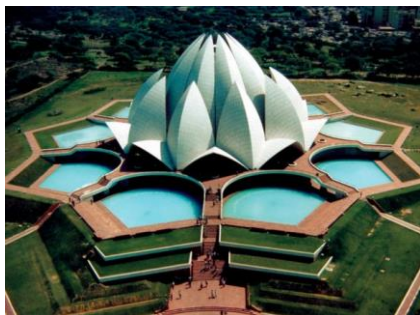


Meitan Tea Museum, China

**Figure 9.** Object-oriented architecture examples

However, the architect should interpret the source of inspiration and reflect it in the new design. In successful examples of formal analogies, there is an overlap of meaning between the perceived object of inspiration and the new architectural design, and the architect has interpreted the source of inspiration.

In buildings using formal analogy, the process of visual analysis is short and thus it is easier to perceive the building and interact with the building. In the relationship established between the building and the user, the visual impression of the users in front of the building and their easy perception of the building are effective in attracting attention to the building (Yıldız Kuyrukçu & Gümüş Ezdemir, 2021). For instance, the Lotus Temple in India is a building inspired by the lotus flower, and the semantic overlap of the physical and symbolic features of the building in the form or structure design facilitates the users' evaluation of the signs and their interaction with the building (Figure 10.).



**Figure 10.** The Lotus Temple and its inspiration the lotus flower

### **3.1.2. Conceptual Analogy**

Analogy is not only formally aesthetic but also has a connotative value. In conceptual analogy, the architect interprets the analogy he chooses as a starting point for the design process. The project develops and concludes on this interpretation. The final product reflects this analogy. The analogy gives symbolism to the structure. Conceptual analogy is the semanticization of analogical simile.

Designs that employ conceptual analogies can be understood with high aesthetic intuition. The building does not resemble the objects of inspiration with a similarity that is understood at first glance, but it is in harmony with the objects of inspiration. For instance, the Mercedes Benz Museum, designed by UN studio in Germany in 2006, is a structure consisting of two ramps, which, like the spirals of a DNA helix, constantly encounter each other and allow visitors to change direction (Figure 11.).



**Figure 11.** Mercedes Benz Museum and its inspiration DNA helix

When looking at the Mercedes Benz Museum from the outside, the building does not resemble a DNA spiral at first glance. Likewise, Frank Gehry, one of the designs requiring high aesthetic intuition, abstracted a dancing couple in the Dancing House he designed in Prague and transferred it to the new design (Figure 12.).



**Figure 12.** Dancing House and the inspiration

In conceptual analogy, a new unknown design is made with known situations by taking the ratio, color, form, functioning and structure material in animate and inanimate nature as a model. Conceptual analogies are a method of interpretation used to achieve creativity, innovation and authenticity in architecture. These are designs in which it is difficult to understand the reference object at first glance without being told through language or other means of expression.

### **3.2. Classification of Analogy According to the Relationship Established with Nature**

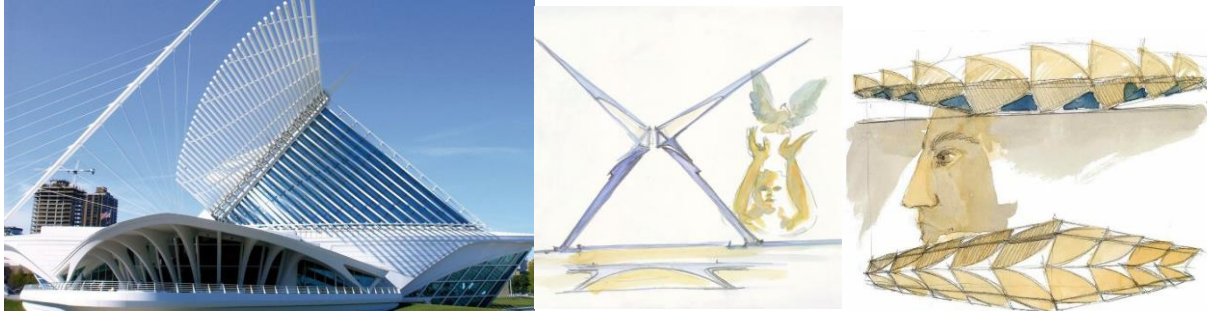
Since its existence in the world, humanity has been learning by mentally analyzing everything and every formation it sees in nature and producing new things by making inferences. Architects, who observe nature and interpret the details it offers, have tried to benefit from nature in every sense. Influenced by the perfect structure of nature, people have included nature in their production processes by copying, imitating, learning and being inspired by it. It is not a coincidence that designs resemble the excellent features of nature and natural functioning.

#### **3.2.1. Analogy from animate nature**

Design creation is a process that requires intense thinking, creativity and authenticity. There are numerous methods and techniques to support this process. The designer can utilize various sources in this process. The living natural environment is one of these sources. Designs can be inspired by the skeletal systems, forms, cell structures or constructional structures of humans, animals or plants. In other words, a connection can be established between living creatures in the natural environment and design. This connection has taken place in designs either formally or conceptually.

As all disciplines are affected by technological developments, increased use of computer systems and discoveries of new materials, architecture has also been affected. As a consequence of these developments, the easier application of organic forms in architecture has made it easier for works inspired by animate nature to mimic or evoke the forms and structures in nature (Aldersey, 2003).

Santiago Calatrava's Milwaukee Art Museum, a museum structure with a system that opens and closes according to the angle of sunlight, was inspired by the flapping wings of birds (Figure 13.).



**Figure 13.** Milwaukee Art Museum and its inspiration, the flying bird

Nature is a system that has already solved a lot of the problems we are trying to solve today. Hence, nature, in which we live and from which we draw our inspiration for life, is always a source of inspiration for architecture in design with its flawless functioning.

### **3.2.2. Analogy from inanimate nature**

In the historical process, many architects have clearly stated that they were inspired by nature in the buildings they designed. This inspiration is sometimes formal and sometimes conceptual. In some of the designs, the ornamental elements are the exact likeness of the objects in nature, while sometimes they appear as an interpretation of nature in form and facade design.

As a result of individuals' emotional and cognitive interactions with nature, they have developed design measures inspired by nature. Order, scale, proportion, functionality, materials (energy conservation, durability, weightlessness), and functioning systems are criteria learned and inspired from nature (Benyus, 2002). While architects have been inspired by living nature in their designs, they have often utilized elements found in inanimate nature such as stone, soil, water, skeletal system, etc. as sources of inspiration. One of these unique examples is the Beijing National Aquatics Center, also known as the "Water Cube", an impressive design created for the 2008 Olympics. The building takes its design inspiration from water drops, in line with its function (Figure 14.).



**Figure 14.** Beijing National Aquatics Center and water drops as inspiration

According to Benyus, there are some laws of nature that are beneficial to individuals, which are in the functioning of the ecosystem, and which he argues that ecological and





sustainable designs can emerge as a result of their use in architectural designs (McGregor, 2013):

- The sun is the source of energy that sustains nature.
- Nature consumes only as much energy as it needs.
- Form and function are inseparable in nature.
- Every material is recyclable in nature.
- Diversity is the existence of nature.
- Cooperation is the law of nature.
- Local labor and local materials are nature's expectation.
- The use of more than the need does not exist in nature.

Designs that are in harmony with the functioning, form, shape, material and structure of nature, or inspired by nature, not only cause the least damage to the ecological balance, but also stand out in the race for authenticity in design.

### **3.3. Classification According to The Way Analogy is Used in Architectural Practice**

Architects enjoy making architectural designs and are concerned with creating an appreciation with their designs, so they tend to search for new forms, structures, materials and processes with the desire to differentiate from conventional designs.

Designers have turned their attention to nature in order to design more comfortable and livable spaces for users that are oriented towards nature and site-specific. Inspired by nature, exceptional shell designs, different structural designs, new material productions and building designs inspired by natural processes that provide their own energy are emerging.

#### **3.3.1. Analogy as shell**

Since architectural shell design has become more important today and analogies are used in design criteria, the title "Analogy as shell" has been added in the new classification title to evaluate how analogies are used in architectural design. In contemporary architectural practice, the idea of a differentiated context has profoundly affected the meaning of the architectural shell. Just as in this era, context no longer encompasses only physical and cultural characteristics, architectural shell does not merely represent the standalone structure and cladding material. The architectural shell, which means the threshold that separates the interior and exterior from each other, is actually a holistic concept that includes the facades, materials and structure of the building, which can be perceived as a whole from all directions.

The combination of physical and semantic elements gives a quality to the architectural shell. These elements are the most important factors that enable the perceived form of the building from the outside world to interact with the user. The architectural form, which is defined as the interface between the interior and the exterior, becomes open to diverse views with the use of design criteria, facade features and analogy. With the combination of all these elements, the architectural shell acquires an architectural character and, together with the analogy, becomes a living body.

In sequence for the architectural product to stand out from the built environment and become an iconic structure, the architectural shell must be designed with distinctive meanings. For this purpose, all the elements that constitute the architectural product should have symbols that carry meaning as well as physical qualities based on form and visual communication. The reason architects use analogy in building envelope design is to realize differentiation objectives. With the development of technology, emulation of nature in analogies has increased and the curvilinear forms of nature have started to take place in shell design. The introduction of organic forms in architectural style with the modern period has increased the influence of analogies in architectural form and shell design. As a result of the emancipation of forms, the use of analogy in shell design has increased. One of the 20th century's most famous buildings, the Sydney Opera House's architect Joern Utzon was inspired by sailboats and seashells (Figure 15.).





**Figure 15.** Sydney Opera House and its inspiration of seashells and sailboats

In recent architecture, the criteria for architectural design, including the desire to be iconic and popular, have encouraged designers to seek innovation both in practice and conceptually. Architectural thought and design understanding change and develop in every epoch. With the development of technology and the discovery of new materials, form is no longer a restrictive element. Designs have become as flexible as possible and open to new architectural languages. With the increase in technical possibilities, buildings have turned into icons that have become the center of attention in city centers. Therefore, analogies are frequently used in shell design to achieve differentiation and the new.

### **3.3.2. Analogy as structure**

Although the concept of structure is considered as a technical concept that mostly concerns civil engineers, Kuban (1998) stated that structure is related to form. Structure is not only a construction technique but also a design of material and form.

Structures are the systems that delimit, define and give meaning to space and at the same time sustain it. Structure design has started to specialize with diverse materials, different forms and advanced construction techniques. As nature is an example in every situation, it has also been an example in structure design. For instance, trees have been seen as an example of a kind of carrier system that communities have been inspired by in architectural design and structural design from past to present. The BCE Palace, a mixed-use complex built by S. Calatrava in Canada in 1987, is an example of the use of the tree analogy in structure. The structure of the BCE Palace consists of 8 inward tree-like inclined steel columns and has a cover system that merges like a parabolic arch. A 14-meter span is crossed and a forest effect is felt when entering this space. Another example of a structure using the tree analogy is the Stuttgart Airport Passenger Terminal. Its roof is a contemporary example of tree-like structures (Figure 16.).



**Figure 16.** BCE Palace and Stuttgart Airport Passenger Terminal

The structure is of great importance for the building to take its final form and acquire volume. Architectural products are a whole from the foundation to the roof and integrity is ensured by the carrier system. Through the relationship between architectural form and structural form, the building is perceived as a whole and the structural design takes its place in the focus of aesthetic concerns. As a result of this relationship, the designer begins

to look for innovations in structural design and uses analogies inspired by animate and inanimate objects in nature.

### **3.3.3. Analogy as material-texture**

Considering the history of architecture, it is possible to say that local materials were preferred as building materials when the population and construction were scarce. These materials are selected in accordance with the climate and the materials available in that location, and are usually materials that are readily available locally, such as wood, natural stone, adobe. As a consequence of the development of technology and the advancement of science, new materials have been discovered and the issues of smart building materials and diversification in building materials have come to the agenda in architecture.

New materials emerge through chemical processes, the mixing of various materials, and the bringing together of complex systems. The fact that glass can take different forms, and that different materials such as aluminum, titanium, metal, steel, different alloys are open to interpretation by providing freedom in color and form has liberated designs in terms of materials.

Nature's role as an example in material design, as in every field, has led researchers to nature. As a result of research stages such as observation, learning and following processes in nature, the color, form, durability, lightness, vitality, energetic and self-renewal properties of materials and natural forms in nature have led designers to be inspired by and imitate living and non-living nature.

Reichert, Menges and Correa (2015), who developed an architectural system that can adapt to local climatic conditions as an example of analogical material design, developed a product by using the qualities of dehumidifying materials that have qualities such as intuition, strength, being in motion, being controlled by considering natural processes. They completed their designs inspired by the dehumidifying movements and surface structure of the cones. They produced a material system designed from wood material that balances humidity with its moving state (Figure 17.).



**Figure 17.** Reichert, Menges and Correa (2015), design of building material that moves depending on humidity and temperature

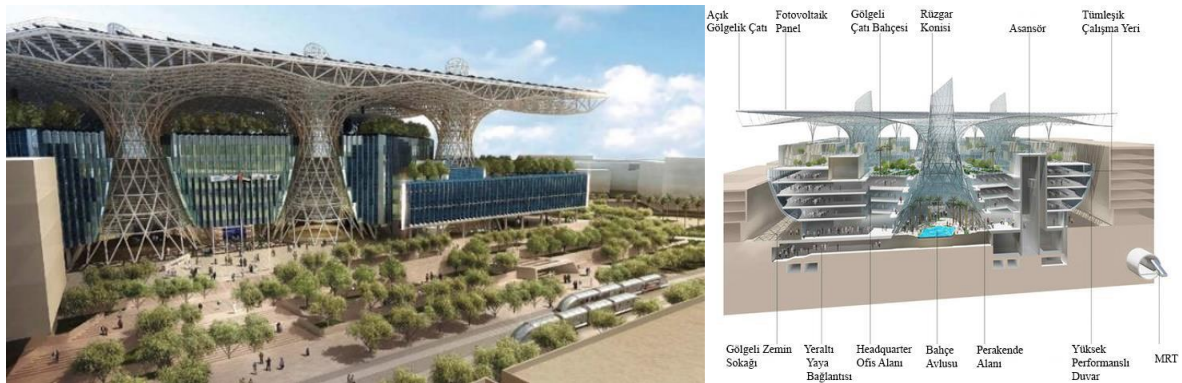
### **3.3.4. Analogy inspired by natural processes as functioning**

As a consequence of ecological problems caused by rapid population growth, unplanned urbanization, and increased use of non-renewable energy resources, it has been discovered that nature is again the source of solutions. For these reasons, building designs that are compatible with nature, behave like nature, are suitable for the climate, use low energy and have systems that can generate their own energy have come to the agenda. In the light of technology and science, views towards nature have changed, and the aims of mimicking nature rather than merely taking from it, of being a resource rather than merely consuming resources have emerged. Designs that conserve, convert and produce energy like nature and aim to act together with nature have emerged.

For the designer, the utilization of analogy in functioning starts with conceptual thinking and continues to maintain its importance in all these design phases. The desire to preserve nature and design sustainable spaces has encouraged new and technological designs that change urban skylines.

In analogies inspired by natural processes as functioning, the building becomes important not only for the whole of its facades perceived from the outside, but also for its interior functionality and energy use. The building is considered as a composition in which the various features are not evaluated individually, but rather as a complex that is concerned with what it produces. In the use of this analogy, the building must be able to respond to the needs and desires of nature and its own existence. Architectural design should be self-sufficient, like a living being, and in harmony with nature in form, color and function. Spaces created by natural processes are wealthy in terms of design issues such as dynamism, permanence and orientation. However, it is not enough for the design to be in harmony with the natural environment; the designer is also concerned with creating remarkable places.

Masdar Headquarters, which utilizes the tree analogy as a structure and is inspired by nature in terms of its functioning, contains tree analogies in its structure and these carriers also form the facade of the building. The building provides almost all of its own energy. It has features such as wind cones, photovoltaic panels, inner courtyards, natural ventilation, natural light and solar energy storage (Figure 18.).



**Figure 18.** Architectural section representing Masdar Headquarters and its natural functioning

### 3.4. Classification of Iconic Buildings in the Light of Analogical Design

In this chapter, 16 internationally known contemporary iconic buildings were selected based on Cleo Broda's (2006) criteria for identifying iconic buildings. By researching the information about the buildings, their architectural design stories and sources of inspiration, the iconic buildings were classified under 3 main analogical classification headings (Table 2.).

**Table 2.** Classification of contemporary iconic buildings with the analogical classification table determined within the scope of the study

<p style="text-align: center;"><b><u>BEIJING NATIONAL STADIUM</u></b></p> <p style="text-align: center;">Jacques Herzog and Pierre de Meuron // China // 2008 // Stadium</p> <div style="display: flex; justify-content: space-around;"></div> <p style="text-align: center;">Beijing National Stadium and its analogical inspiration the bird's nest</p> <ol style="list-style-type: none"><li>1. Classification According to the Perception of Analogy: <b>Formal Analogy</b></li><li>2. Classification of Analogy According to the Relationship Established with Nature <b>Analogy from animate nature</b></li><li>3. Classification According to The Way Analogy is Used in Architectural Practice: <b>Analogy as Structure</b></li></ol> <p>Famous as the "<b>Bird's Nest</b>" because of the grid-like appearance of its steel structure, the Beijing National Stadium resembles a bird's nest made of a massive steel cage with a mass of 41,875 tons when viewed from a bird's eye view.</p>
<p style="text-align: center;"><b><u>BAKU FLAME TOWERS</u></b></p> <p style="text-align: center;">HOK // Azerbaijan // 2013 // Skyscraper</p> <div style="display: flex; justify-content: space-around;"></div> <p style="text-align: center;">Baku Flame Towers and the analogical inspiration of the flame</p> <ol style="list-style-type: none"><li>1. Classification According to the Perception of Analogy: <b>Conceptual Analogy</b></li><li>2. Classification of Analogy According to the Relationship Established with Nature <b>Analogy from inanimate nature</b></li><li>3. Classification According to The Way Analogy is Used in Architectural Practice: <b>Analogy as Shell</b></li></ol> <p>The inspiration for the design of Baku Flame Towers, one of the iconic buildings of Baku, designed by HOK, was taken from the history of Baku's long burning areas, known as the "<b>region of fires</b>" (Anonymous, 2014).</p>








**Table 2.** Classification of contemporary iconic buildings with the analogical classification table determined within the scope of the study

<p style="text-align: center;"><b><u>TURNING TORSO</u></b></p> <p style="text-align: center;">Santiago Calatrava // Sweden // 2005 // Skyscraper</p> <div style="display: flex; justify-content: space-around;"></div> <p style="text-align: center;">Turning Torso and the analogically inspired human</p> <ol style="list-style-type: none"><li>1. Classification According to the Perception of Analogy <b>Conceptual Analogy</b></li><li>2. Classification of Analogy According to the Relationship Established with Nature: <b>Analogy from animate nature</b></li><li>3. Classification According to The Way Analogy is Used in Architectural Practice: <b>Analogy as Structure</b></li></ol> <p>Turning Torso is inspired by the rotation of the human body around itself, and the architect has designed a structure that represents the 'rotation of the human body' by abstracting cubes rotating around a core. Sculptures that are only in the form of a torso without arms, head and legs are called torsos and turning means rotating. In other words, turning torso means the twisting of the human torso. Calatrava, who designs by conceptual analogy, has a strong analogical relationship between the object of inspiration and the design product.</p>
<p style="text-align: center;"><b><u>VANKE PAVILION</u></b></p> <p style="text-align: center;">Studio Libeskind // Milan Expo // 2015 // Pavilion</p> <div style="display: flex; justify-content: space-around;"></div> <p style="text-align: center;">Vanke Pavilion and its analogical inspiration the dragon</p> <ol style="list-style-type: none"><li>1. Classification According to the Perception of Analogy <b>Formal Analogy</b></li><li>2. Classification of Analogy According to the Relationship Established with Nature: <b>Analogy from animate nature</b></li><li>3. Classification According to The Way Analogy is Used in Architectural Practice: <b>Analogy as Material-Texture</b></li></ol> <p>Designed by internationally renowned architect Daniel Libeskind, it is Vanke China's corporate pavilion at the Expo. The concept of the Vanke Pavilion is inspired by <b>Chinese culture and the dragon</b>, the basic element of life, the representative of abundance and fertility, is the inspiration for the building (Anonymous, 2015).</p>

**Table 2.** Classification of contemporary iconic buildings with the analogical classification table determined within the scope of the study





<p style="text-align: center;"><b><u>EAST GATE OFFICE BUILDING</u></b></p> <p style="text-align: center;">Mike Pearce // Harare Zimbabwe // 1996 // Business Center</p> <div style="display: flex; justify-content: space-around;">    </div> <p style="text-align: center;">East Gate Office Building and its analogical inspiration termite</p> <ol style="list-style-type: none"> <li>1. Classification According to the Perception of Analogy <b>Conceptual Analogy</b></li> <li>2. Classification of Analogy According to the Relationship Established with Nature: <b>Analogy from inanimate nature</b></li> <li>3. Classification According to The Way Analogy is Used in Architectural Practice: <b>Analogy Inspired by Natural Processes as Functioning</b></li> </ol> <p>The architect Mike Pearce, designer of the East Gate building, <b>was inspired by the huge animal mounds and the way of life of the termites that build them.</b> This smart and sustainable building works in exactly the same way as a termite mound, providing constant environmental conditions all year round without the use of any artificial systems. Shading elements on the facades of the building ensure that the building gains minimal solar heat (Pawlyn, 2011).</p>
<p style="text-align: center;"><b><u>HAZZA BIN ZAYED STADIUM</u></b></p> <p style="text-align: center;">Pattern Design // United Arab Emirates // 2014 // Stadium</p> <div style="display: flex; justify-content: space-around;">    </div> <p style="text-align: center;">Hazza Bin Zayed Stadium and its analogical inspiration the palm tree</p> <ol style="list-style-type: none"> <li>1. Classification According to the Perception of Analogy <b>Conceptual Analogy</b></li> <li>2. Classification of Analogy According to the Relationship Established with Nature: <b>Analogy from animate nature</b></li> <li>3. Classification According to The Way Analogy is Used in Architectural Practice: <b>Analogy as Material-Texture</b></li> </ol> <p>Al Ain is the second largest city in the United Arab Emirates. Renowned for its date palm plantations, it also inspired the design of the stadium. Pattern Design was <b>inspired by the fractal geometry of the palm fronds as they swirl in the wind</b> and used parametric design technology to create a form that reflects this in the façade. They called this facade design "<b>Palm Bole</b>".</p>

**Table 2.** Classification of contemporary iconic buildings with the analogical classification table determined within the scope of the study

<p style="text-align: center;"><b><u>HARBIN OPERA HOUSE</u></b> MAD Architects // China // 2015 // Cultural Center</p> <div style="display: flex; justify-content: space-around;"></div> <p style="text-align: center;">Harbin Opera House and its analogically inspired sand dune</p> <ol style="list-style-type: none"><li>1. Classification According to the Perception of Analogy <b>Formal Analogy</b></li><li>2. Classification of Analogy According to the Relationship Established with Nature: <b>Analogy from inanimate nature</b></li><li>3. Classification According to The Way Analogy is Used in Architectural Practice: <b>Analogy as Shell</b></li></ol> <p>Harbin is a cold climate city famous for its wetlands. The Harbin Opera House was designed in reference to the nature and spirit of the city of Harbin. <b>Seemingly shaped by wind and water, the building seamlessly merges with nature and topography.</b> The design of the opera house references the undulating <b>landscape of the surroundings</b> (Frearson, 2015).</p>
<p style="text-align: center;"><b><u>ROYAL ONTARIO MUSEUM – THE CRYSTAL</u></b> Daniel Libeskind // Canada // 2007 // Museum</p> <div style="display: flex; justify-content: space-around;"></div> <p style="text-align: center;">Royal Ontario Museum - Crystal and analogical inspiration ice crystal</p> <ol style="list-style-type: none"><li>1. Classification According to the Perception of Analogy <b>Conceptual Analogy</b></li><li>2. Classification of Analogy According to the Relationship Established with Nature: <b>Analogy from inanimate nature</b></li><li>3. Classification According to The Way Analogy is Used in Architectural Practice: <b>Analogy as Shell</b></li></ol> <p>In 2007, renowned architect Daniel Libeskind and his office designed a deconstructivist 'extension' to expand the Royal Ontario Museum, Canada's largest museum, which attracts one million visitors a year. This extension, also known as '<b>The Crystal</b>', has been part of the Royal Ontario Museum since 2007.</p>



**Table 2.** Classification of contemporary iconic buildings with the analogical classification table determined within the scope of the study

<p style="text-align: center;"><b><u>CITY OF ARTS AND SCIENCES</u></b> Santiago Calatrava // Spain // 2005 // Museum</p> <div style="display: flex; justify-content: space-around;"></div> <p style="text-align: center;">City Of Arts and Sciences and the whale skeleton as analogical inspiration</p> <ol style="list-style-type: none"><li>1. Classification According to the Perception of Analogy <b>Formal Analogy</b></li><li>2. Classification of Analogy According to the Relationship Established with Nature: <b>Analogy from animate nature</b></li><li>3. Classification According to The Way Analogy is Used in Architectural Practice: <b>Analogy as Structure</b></li></ol> <p>The building by Calatrava is designed in the shape of a rib, has three floors, 40,000 square meters. From the outside, the building looks like the skeleton of a prehistoric animal or the '<b>skeleton of a great whale</b>'. The main structure of the design is based on the repetition of the asymmetrical rib-shaped structure.</p>
<p style="text-align: center;"><b><u>QATAR NATIONAL MUSEUM</u></b> Ateliers Jean Nouvel // Qatar // 2019 // Museum</p> <div style="display: flex; justify-content: space-around;"></div> <p style="text-align: center;">Qatar National Museum and the analogical inspiration of the desert rose</p> <ol style="list-style-type: none"><li>1. Classification According to the Perception of Analogy <b>Formal Analogy</b></li><li>2. Classification of Analogy According to the Relationship Established with Nature: <b>Analogy from inanimate nature</b></li><li>3. Classification According to The Way Analogy is Used in Architectural Practice: <b>Analogy as Shell</b></li></ol> <p>Jean Nouvel, the architect of the building, stated that the design of the building was inspired by a mineral formation called desert rose, which is commonly found in the deserts of the Gulf region. '<b>Desert rose</b>' is the name of a rock formed when minerals crystallize in the crumbling soil just below the surface of a shallow salt basin.</p>



**Table 2.** Classification of contemporary iconic buildings with the analogical classification table determined within the scope of the study

**BEIJING NATIONAL WATER SPORTS CENTER**

PTW Architects // Beijing // 2003 // Swimming Pool



Beijing National Aquatics Center and its analogical inspiration the water drop

1. Classification According to the Perception of Analogy **Formal Analogy**
2. Classification of Analogy According to the Relationship Established with Nature:  
**Analogy from inanimate nature**
3. Classification According to The Way Analogy is Used in Architectural Practice:  
**Analogy Inspired by Natural Processes as Functioning**

Located right next to the Beijing National Stadium, the Beijing National Aquatics Center has become famous as the "**Water Cube**". Designed by PTW Architects, the concept of the building is to symbolize water in every area of the building. "Water inside and water outside" is the inspiration concept of the designers. They wanted the water-related activities inside the building to be perceived on the exterior as well. For this, a building material based on bubbles is used on the facade. The water drop-inspired coating preferred on the facade allows more daylight and warmth to enter the building than traditional glass, thus reducing energy loss by 30%. The project was developed to be sustainable and respectful of the environment (Etherington, 2008).

**BIESBOSCH MUSEUM ISLAND**

Studio Marco Vermeulen // Netherlands // 2015//Museum



Biesbosch Museum Island and analogical inspiration

1. Classification According to the Perception of Analogy **Conceptual Analogy**
2. Classification of Analogy According to the Relationship Established with Nature:  
**Analogy from inanimate nature**
3. Classification According to The Way Analogy is Used in Architectural Practice:  
**Analogy Inspired by Natural Processes as Functioning**

The main reason for the development of the Biesbosch Museum Island was to ensure water security. This building has become part of the water security program by retaining water. To avoid unnecessary use of energy and materials, the form of the exhibition spaces has been kept hexagonal, so that the building can have large windows and make maximum use of the sun. Biesbosch has a rich history of collecting and processing natural materials and is a bio-based pioneer.

**Table 2.** Classification of contemporary iconic buildings with the analogical classification table determined within the scope of the study

<p style="text-align: center;"><b><u>ESPLANADE ARTS AND HERITAGE CENTRE</u></b></p> <p>DP Architects and Michael Wilford &amp; Partners// Singapore // 2013// Cultural Center</p> <div data-bbox="347 383 1246 680"></div> <p>Esplanade Art Center and its analogical inspiration, the papaya plant</p> <ol style="list-style-type: none"><li>1. Classification According to the Perception of Analogy <b>Formal Analogy</b></li><li>2. Classification of Analogy According to the Relationship Established with Nature: <b>Analogy from animate nature</b></li><li>3. Classification According to The Way Analogy is Used in Architectural Practice: <b>Analogy as Material-Texture</b></li></ol> <p>The Esplanade Art Center is described as a flower-shaped structure representing a lighthouse in a seaside park. Esplanade is described as an iconic and cute spiky structure. It also has nicknames such as "Marshmallows", "<b>Papayas</b>", "Soursops", which reveal Singapore's love of food. The shell of the structure is associated with the papaya plant.</p>	<p style="text-align: center;"><b><u>WORLD TRADE CENTER - OCLUS</u></b></p> <p>Santiago Calatrava // USA // 2016 // Transportation Center</p> <div data-bbox="483 1077 1110 1375"></div> <p>World Trade Center - Oculus and its analogical inspiration the flying bird</p> <ol style="list-style-type: none"><li>1. Classification According to the Perception of Analogy <b>Formal Analogy</b></li><li>2. Classification of Analogy According to the Relationship Established with Nature: <b>Analogy from animate nature</b></li><li>3. Classification According to The Way Analogy is Used in Architectural Practice: <b>Analogy as Structure</b></li></ol> <p>Calatrava mentions several conceptual analogies in the design of the Oculus: The Byzantine Mandorla (the frame that encloses Jesus and Mary in ancient Byzantine paintings), the form inspired by the wings protecting the canopic container in the ancient Egyptian Ark of the Covenant, <b>the bird that escapes from the hands of a child.</b></p>
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**Table 2.** Classification of contemporary iconic buildings with the analogical classification table determined within the scope of the study

<p style="text-align: center;"><b><u>SOUMAYA MUSEUM</u></b></p> <p style="text-align: center;">FR-EE / Fernando Romero Enterprise // Mexico // 2011 // Museum</p> <div style="text-align: center;"></div> <p style="text-align: center;">Soumaya Museum and its analogical inspiration, the fish flake</p> <ol style="list-style-type: none"><li>1. Classification According to the Perception of Analogy <b>Formal Analogy</b></li><li>2. Classification of Analogy According to the Relationship Established with Nature: <b>Analogy from animate nature</b></li><li>3. Classification According to The Way Analogy is Used in Architectural Practice: <b>Analogy as Material-Texture</b></li></ol> <p>The Soumaya Museum in the Mexican capital is home to over 66,000 artifacts, including some of the world's most important artifacts. The form of the building is clad with 16,000 hexagonal mirrored steel elements that look <b>like fish flakes, referring to traditional colonial ceramic tiled building facades</b>, and this building material gives the museum a distinctive look. This practice ensures the preservation and durability of the building, and also allows the façade to be perceived differently at different times of the day as weather and time of day differences are reflected on the facade.</p>
<p style="text-align: center;"><b><u>CALIFORNIA ACADEMY OF SCIENCE MUSEUM</u></b></p> <p style="text-align: center;">Renzo Piano + Stantec Architecture // USA // 2008 // Museum</p> <div style="text-align: center;"></div> <p style="text-align: center;">The Museum of the California Academy of Sciences and its analogical inspiration topography</p> <ol style="list-style-type: none"><li>1. Classification According to the Perception of Analogy <b>Formal Analogy</b></li><li>2. Classification of Analogy According to the Relationship Established with Nature: <b>Analogy from inanimate nature</b></li><li>3. Classification According to The Way Analogy is Used in Architectural Practice: <b>Analogy Inspired by Natural Processes as Functioning</b></li></ol> <p>The California Academy of Sciences Museum, a science and research center co-designed by Renzo Piano and Stantec Architecture, is one of America's most important research institutions. Sustainability is one of the key features of this project. Renzo Piano was awarded the best design award by LEED for this design. The California Academy of Sciences Museum deserves this award for its many green strategies. The natural soil layer under the green roof acts as an effective insulation layer. The building's heat is conserved in this way and there is no need for artificial air conditioning systems inside the museum.</p> <p>Photovoltaic panels placed on the transparent canopy of the roof convert solar energy into electricity. More than 5% of the museum's electricity needs are provided in this way. The choice of materials, recycling strategies, use of natural light, water use, rainwater collection systems and energy use all contribute to the California Academy of Sciences Museum being a sustainable museum building.</p>



#### 4. ASSESSMENT AND CONCLUSION

Architecture is a phenomenon that has left traces in memories for centuries. The fact that people started to consciously organize their environment by moving from nomadic life to settled life started the accumulation of architectural knowledge. As a physical container of human activity, architecture is not merely a shelter or a protective umbrella; it is the physical evidence of human life and its cultural legacy to the future. While building these structures; they attached significance to emotions, values and beliefs. There is a visual communication between human and architectural structure.

Meaning in architecture is a hybrid concept that can be open to different perspectives, varies from individual to individual and can be discussed at different levels. In architectural design, various relationships are established from formal structure to conceptual structure, from functional requirements to historical and environmental contexts. In order to explain these complex relationships, the nature of forms and concepts must be explained in a certain sense. At this point, the concept of "analogy", often used in philosophy, literature and linguistics, can be used as a reference for communication in architecture. Analogical design provides architectural products with symbols, signs and conceptual processes, as well as the possibility of a transmission that conveys emotion. Analogies are a form of expression that architects use in their designs in the race to be authentic. It has been observed that the analogies used in architecture are not only symbolic statements, but also a means for the architect to communicate the architect's personal world of imagination.

Architects use analogical expression in their designs for various reasons, including:

- Ensure cultural continuity,
- Giving messages,
- Reflecting the function, concept, and the building's sense of belonging to its surroundings.
- Adding distinctiveness and attention-grabbing features to the project.
- Adding symbolism to the building.
- Making the building a symbol of the city.
- Creating a personal architectural language for the arc facts.

Designers often resort to analogical design to differentiate themselves in iconic building design, which is designed to be unique and extraordinary. Iconic architecture is architecture that has a place in the memory of the community and is a focal point from the past to the present. In order for a building to be defined as an icon, it must have a highly symbolic form, have an invisible and intense image, and be distinguished from the existing place. In order to have a strong value, it must contain remarkable symbols, be memorable for users by evoking associations, and create a value for society. Architectural icons exist through all these meanings.

In this study, the concept of analogical design as a communication tool in architecture, iconic structure, and the relationship between iconic structure and analogy are discussed. A new analogy classification table was proposed by analyzing and synthesizing the analogical classifications made by experts from past to present. 16 buildings designed in the 21st century, bearing the iconic building characteristics of Cleo Broda (2006) and showing analogical characteristics; in the section titled 3.4 Classification of Iconic Buildings in the Light of Analogical Design, they are classified according to the new analogical classification table in Table 2. In this table, building features, designers' opinions about the building and information about the building are included. Even if the iconic buildings that have emerged as a result of globalization and the race of architects and businesses to distinguish themselves are not made with fully explained sequential rules, it can be said that there are some general ideas on this subject. According to the information in Table 2, in the context of the iconic structure-analogy relationship, the following findings were made:





- Icons have astonishing form, structure and material.
- It has been observed that iconic buildings are an important factor in the formation of urban identity and that they contribute to the city socio-culturally and economically. It can be said that contemporary iconic buildings have the purpose of being remembered together with the city.
- Iconic buildings are usually grand-scale public structures.
- They are influenced by the socio-cultural structure of societies and are formed through symbols.
- Iconic buildings are often designed by renowned architects.
- When the relationship between contemporary icon buildings and analogies is examined, analogies as a shell, which provides the first image of the building, is the most commonly used analogical design method by designers. It is thought that the reason for this is that the shell design, which is the perceived and defined face of the architectural structure in the urban area, covers the entire facade and increases the integrated effect of the building.
- Since the building shell and structure are architectural elements that can be clearly perceived visually, it is concluded that analogical design is mostly used in these areas in iconic buildings.
- In iconic buildings, formal analogy is at the forefront, utilizing nature in animate or inanimate forms that can quickly communicate with society. However, there are also successful examples that are conceptually designed and that make a lot of noise.
- In the examples examined, it was determined that in the design of the museum buildings, which should be closed in and should not receive light from outside, more materials are used in the foreground and analogies are used as material-texture. These buildings are generally very large in size and are seen as a bulky mass without using materials and textures from nature. For this reason, the architect tries to compensate for the balance of fullness and emptiness on the facade with the search for different materials inspired by nature.
- When the iconic buildings are analyzed, it is seen that there are few examples of analogy from nature as a process and operation. In addition, it was determined that sustainable and LEED certified iconic buildings benefit from analogy as natural process and functioning.

The analysis revealed that designing iconic buildings is very significant for cities and their designers. These buildings, which contribute to the identity of the city, are also the biggest factor in the designers becoming renowned or maintaining their fame. However, iconic building design is not just an ordinary architectural strategy. In iconic building design, the risk factor and being productive are at the forefront. To become an icon, it is necessary to be creative, innovative and unique. At this point, analogical design is the most important tool for architects. Architects use analogies in iconic building design for the purpose of differentiation and self-expression. They design iconic buildings that can attract the attention of the society by taking reference from animate and inanimate nature with diverse forms, structures, materials and processes. Because Icon buildings are not type projects, they are easily memorable at first sight and cannot be easily reproduced as in type projects. These qualities make it simpler to communicate with users and support the easy establishment of the user-concept connection. In this process, analogical designs enable the discovery of unfamiliar forms, structures and materials by establishing new design connections with familiar objects.

As a result, in the light of the examples examined, iconic architecture generally has qualities such as experimenting with a new style, being a design product, being a pioneer, being the first, showing the essence and architecture of the era in which it was built, influencing users, being a symbol, reflecting an era, representing a movement. Such buildings are also the answer to societies' search for symbols. Whether they are in harmony



with their surroundings or not, whether they are functional or not, whether their architectural language is a whole or not, all iconic architectural products are visually impressive. The designers of these architectural icons resort to analogical design to ensure that these buildings have a strong value, contain remarkable symbols, are memorable for users by evoking associations, and create value for society.

Analogy is a process of representation and expression that extends from the object that the architect is influenced by to the product that the architect creates. Conceptual analogy is the expression of the architect's imagination. It is the reflection of the object of inspiration into the structure by acquiring symbolic value. Analogy gives symbolism to the structure. These buildings, which are explained with conceptual fictions, are appreciated by both architects and the public. Our duty as architects is to keep the analogies away from simple imitation and transfer them to the new design by attributing conceptual meanings. Undoubtedly, the aesthetic and semantic value of the buildings designed in this way will be higher.

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