

LANGUAGE OF MINIMALISM IN ARCHITECTURE

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ABSTRACT

One of the remarkable phases of Modern Architecture is 'Minimalism'. This movement concerns with stripping away the unwanted details and defines the true essence of any given architectural element. It prevailed among architects who purposed simplicity, transparency, and spirituality. Its spaces interact with nature which makes users enter an atmosphere of reverence, asceticism, and silence. The problem is; 'Minimalist' approach witnessed a clear progress in art, décor, and interior design but got quite disappeared in architecture; just few architects who still design projects depending on it. This paper, therefore, aims to read and interpret the language of 'Minimalism' in architecture, understanding which design elements should be used to give a space the character of being 'minimal'. To achieve this aim, the paper tries to uncover the philosophy of 'Minimalism', its origins, and extracts its design criteria. After that, the paper analyzes works of Tadao Ando, Luis Barragán, and Alberto Campo Baeza, as case studies, to understand their architectural languages and how these works became successful landmarks. One of the important key findings is: In 'Minimalism', nature became architecturalized through clear spaces and simple geometries. It creates a strong dialogue between elements of architecture and elements of nature.

KEYWORDS: Architecture, minimalism, language, philosophy, design, concept.

1. INTRODUCTION

One of the important trends in architecture is 'Minimalism', what was actually one of Modern architecture approaches. It had an impact on many fields as art, décor, interior design, industrial design, and architecture. Unfortunately, Minimal architecture started to be less spread than before despite its strong influence on users. This paper aims at offering a conceptualization in philosophy of 'Minimalism' and its architectural language, particularly in the twentieth century, using a scientific methodology that separates the paper into two parts; a theoretical and a practical. The first part is a

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literature review that investigates meaning of 'Minimalism', its origins, how was represented in art, then architecture, until reaching to extract the criteria of how to design a project using the 'Minimalist' approach. The second part analyzes three case studies, works of “Tadao Ando, Luis Barragán, and Alberto Campo Baeza”, aims at laying hands on understanding their own architectural language of 'Minimalism' using the design criteria. A detailed comparative analysis, after that, will be presented to rephrase understating language of Minimalism but into specific points. Finally, the paper sets a group of conclusions that are expected to enrich the talk in the field of 'History and Theories of Architecture' and may also be useful recommendations for architects, users, and critics.

2. MEANING OF MINIMALISM

Minimalism is a term referring to styles of visual art, music, and design displaying pared-down design elements. It derives from the reductive aspects of Modernism. The term 'minimalist' often refers to anything that is spare or stripped to its essentials. The word was first used in English in the early 20th century to describe "a 1913 composition by the Russian painter Kazimir Malevich of a black square on a white ground"[1]. In English dictionaries, 'Minimalism' is a school of abstract painting and sculpture that emphasizes extreme simplification of form, using the basic shapes and monochromatic palettes of primary colours, objectivity, and anonymity of style, also called the art of reductivism which uses fewest and barest essentials or elements, as in art, literature, music, or design [2]. While the American journalist, Leo Babauta, interpreted the meaning of 'Minimalism' socially as simply getting rid of unneeded things, leaving an uncluttered, simple life, living without an obsession with material things or an obsession with doing everything and doing too much. In Babauta's vision, 'Minimalism' is using of simple tools, carrying little and living lightly [3].

3. ORIGINS OF MINIMALISM

Critics of 20th century architecture clarify that 'Minimalism' is in fact an outcome of Japanese traditions; specifically 'Zen' Philosophy and 'Haiku' poetry. Ideas of simplicity appear in many cultures, especially the Japanese traditional culture.

4. MINIMALISM IN ART

Minimalism in visual art is generally indicated as 'minimal art', literalist art and ABC Art [8]. In fact, 'Minimalism' started to appear in art as geometric abstractions of painters associated with Bauhaus, in works of Kazimir Malevich as in Fig. 1, Piet Mondrian and other artists associated with the De Stijl movement, and the Russian Constructivist movement. In 1949, the French artist Yves Klein conceived his 'Monotone-Silence Symphony' that consisted of a single 20-minute sustained chord followed by a 20-minute silence. He connected between silent movement of dancers and painted them in abstracted monochromic forms as shown in Fig. 2 [9].



Fig. 1. Kazimir Malevich, 'Black Square', 1915.

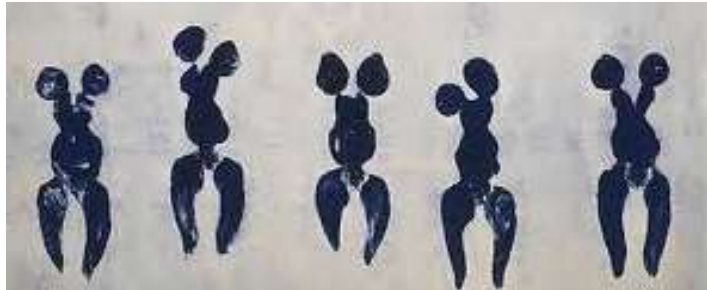


Fig. 2. Yves Klein, 'Monotone-Silence Symphony', 1949, France.

Then it started to be an independent art trend in post-World War II Western Art, most strongly with American visual arts in 1960s and early 1970s. Prominent artists associated with minimalism include Donald Judd, John McCracken, Tony Smith, Agnes Martin, Dan Flavin, Robert Morris, Carl Andre, Anne Truitt, and Frank Stella. It derives from the reductive aspects of Modernism and is often interpreted as a reaction against Abstract expressionism and a bridge to Postminimal art practices. Their art language was very obvious representing objects in total abstraction and pure forms, reducing the artistic work to minimal number of details. Their art works directed their philosophy towards the meaning of 'object'. In general, Minimalism's features included geometric, often cubic forms purged of much metaphor, equality of parts, repetition, neutral surfaces, and industrial materials. Each of the leading figures associated with 'Minimalism' developed a style of austere, serial or whole geometric

forms as shown in Figs. 3-6 [10]. Donald Judd created boxes and stacks in iron, anodized aluminum and Plexiglas; Robert Morris built all-grey plywood pieces and mirrored cubes; Dan Flavin mounted fluorescent lamps on the wall and floor. Carl Andre's brick pieces and metal panels, Sol LeWitt's open cupe lattices, Anne Truitt's asymmetrical metal solids, Larry Bell's glass boxes and John McCracken's lacquered works. Other artists as Robert Smithson and Mel Bochner transformed the serial logic and geometric forms of the new sculpture into highly distinctive idioms. Artists of this stage breathed new life through the monochrome canvas [11].



Fig. 3. 'Primary Structures' are minimalist works exhibited in the Jewish Museum, New York, 1966.



Figs. 4-6. Works of Judd and Morris: 'Plexiglas Mirrors', 'Stainless Steel Boxes' and 'Black anodizes aluminum, bronze Plexiglas', 1960s.

After decades, the critic Hal Foster interpreted 'Minimalism' artistically as a crux that both completes and ruptures the Modernist paradigm, while Anne C. Chave defined it politically as an authoritarian style and a sign of control. Unfortunately, with deaths of Donald Judd and Dan Flavin, 'Minimalism', however began to disappear and became a historical movement. What can be concluded here that works of 'Minimal Art' had specific features as: straight lines, plain levels, neat sharp edges, non-detailed simple forms, and using of light & mirrors. Based on the preceding, the paper will investigate the 'Minimalism' in architecture.

5. MINIMALISM IN ARCHITECTURE

To investigate 'Minimalism' in architecture, the paper will proceed this investigation into four main points: 'When did the term minimalism appear in

architecture?', concept and design language of minimalist architecture, reason beyond employing minimalism in architecture, and identifying pioneers of minimalist architecture, then these points will lead to conclude the 'design criteria by minimalism'.

5.1 When Did The Term 'Minimalism' Appear In Architecture?

The term 'minimalism' had had some currency in architectural debate for some time prior to 1990. Although works of 'minimalism' appeared since 1920s and 1930s, but the term itself had not been recognized yet. After approximately 50 years, Charles Jencks had made use of the term in his book 'Current Architecture', in 1982, but only in a fairly casual, adjectival, rather than generic sense. In December 1988 a special issue, entitled 'Minimal', of the Italian architectural magazine 'Rassegna' was devoted to an analysis of the phenomenon. Minimalism itself is only briefly defined, as essentially bourgeois, Late Modern movement [12]. The English architect John Pawson believes that the first use of the term 'Minimalist' appeared to describe a certain type of British architecture. Before his training at the A.A., Architectural Association School of Architecture, Pawson spent in Japan for four years and there he met Tadao Ando. Despite his experience in Japan, Pawson argues that there are factors coming from within the European tradition: the notion of casting away material positions for a life of contemplation is common to monastic traditions the world over, perhaps, more inspiringly expressed than in the architecture of the Cistercian monasteries and the work of Mies van der Rohe, as possibly a greater influence than his experience in Japan[13]. After recognizing when the term 'minimalism' appeared in architecture, the paper can quote the definition mentioned by Cerver, in his book 'The Architecture of Minimalism', as: "The architecture that simplifies living space to reveal the essential quality of buildings and conveys simplicity in attitudes toward life" [14].

5.2 Concept & Design Language of 'Minimalist' Architecture

According to Alan Colquhoun, the critic of Modern Architecture, the language of minimalist architecture focuses on interest in openness and continuity of space,

generating an essentially horizontal architecture, reduction of detailing to minimum, along with rejection of traditional architectural forms and conventions, and play of natural light on mainly white surfaces. Colquhoun connected concepts of functionalism and minimalist in bound together. Minimalism has always been materialized as the reduction to basic concepts of space, light, and mass [15]. Architecture of 'Minimalism' has intellectual and metaphysical meanings. Its language depends essentially on light, form, detail of material, space, place and human condition. Minimalist architects look deeply into the spiritual dimension and the invisible, by listening to the figure and paying attention to details, people, space, nature and materials. In addition, they open up a dialogue with the surrounding environment to decide the most essential materials for the construction and create relationships between buildings and sites. According to Franc Bertoni, minimalist language conveys messages of simplicity, basic geometric forms, large space with minimum objects and furniture, simple materials, cold lighting, and repetitions of structures represent a sense of order and essential quality [16].

5.3 Reasons Beyond Employing 'Minimalism' in Architecture

One of the important reasons beyond using the 'Minimalist' approach was influence by Modernism's thoughts as the industrial development happened in science of structure, construction systems, and building technology at early decades of 20th century. Quality of manufacturing the long glass panels, soft fairface concrete, and minimum joints of structure were clear outcomes that helped architects to execute their design language. And of course, the influence by Japanese traditions was another important reason. But the question here is: On the global scale, why did architects use this approach in design? The answer may let us cross boundaries and reach a deep sensitive zone. After passing the Renaissance Age “14th to 17th centuries”, and getting rid of Church's domination in Europe, scientific theories had been raised all over the world focused on man. Throughout Enlightenment Age “1650s to 1780s” and Industrial Age “began around 1760s to 1900s”, hundreds of scientific innovations were created. World clearly acted to celebrate science and nothing more, which produced a

real conflict, an endless debate, between science and religion, which one is deserved to be worshipped; God or Science. Many people around the world got lost in that conflict. A group of architects, therefore, tried to produce a real solution to man. They find in 'Minimalism' a new salvation, a new way to let man re-discover him/her self. The two American authors Joshua Fields Millburn and Ryan Nicodemus, who call for the 'minimalist' life, clarified the intentions of 'minimalist' architects. They thought that experiencing 'minimalist' spaces may achieve the following aspects: “eliminate our discontent, reclaim our time, live in the moment, pursue our passions, discover our missions, experience real freedom, create more consume less, focus on our health, grow as individuals, contribute beyond ourselves, free ourselves of excess stuff, and discover purpose in our lives” [17]. A new paradigm in architecture therefore was raised to focus on freeing man to integrate with nature through simple architectural language. Architects' reasons differentiate between austerity, asceticism, unifying with nature, meditation, transparency, purity, intangibility, clarity, spirituality, or reaching by away or another to 'Nirvana'; the state of user's soul that may unify with divine ground of existence “Supreme Being”. The Hindu philosophy defines 'Nirvana' as the union with the divine Brahman and the experience of blissful egolessness [18].

5.4 First Pioneers of 'Minimalist' Architecture

The German architect Mies van der Rohe remains the most important and earliest forerunner of 'Minimalist' architecture, particularly from 1920s to 1960s. His famous motto 'less is more' is for modernists defining statement for minimalists, it has become a mantra for stripping away unwanted detail. Functionally, it describes his tactic of arranging the numerous necessary components of a building to create an impression of extreme simplicity by enlisting every element and detail to serve multiple visual and functional purposes. Mies' designs define the true essence of any given piece whether it is a piece of cutlery, a gallery space, or a building in the landscape [19]. In the icon of 'Modernism', the German Pavilion in Barcelona 1928, Mies intended to maximize the feeling of a free flow of space between inside and out, as shown in Figs. 7-13.



Fig. 7. The German Pavilion in Barcelona, Spain, 1928. Photographed by the author, during visiting Barcelona, 2013.



Figs. 8-13. Interior shots represent the 'Minimalist' spaces of the pavilion. Photographed by the author, during visiting Barcelona, 2013.

Language of Minimalism that used by Mies is: non-detailed walls, monochromic grey color, transparent glass with minimum mullions, contacting with outside nature through green and water elements, and focusing on a single object which is a full bronze alloy of female statue. Mies' reduction of details was not an end in itself, but the means of achieving a more general fusion between architecture and nature. For Mies, glass provides a visual, but not actual, connection with the external world [20]. Structurally, dictum of the Italian constructivist Pier Luigi Nervi; 'Beauty of structure is where to put a hole' can't be missed out in this discourse. Nervi subtracted forms to be only structural without any decoration. From 1940s to 1960s, Nervi's thin shell structures were examples for removing any un-structural element. Mathematically, his architectural elements drew only form of loads. Consequently,

Nervi's 'minimalist' approach was applied though emptying the structural elements from any unneeded loads to reach minimum forms with maximum beauty [21]. Another important figure was the Japanese architect Kazuo Shinohara. His design language, raised from 1960s to 1980s, depended on qualities of silence, lacquer textures, and rustication versus glitter. Shinohara inspired his concepts from 'Haiku'. Philosophically, his pure forms mediate with nature let users reach the state of 'Nirvana'. His architecture belongs to spirituality producing a new dimension of aesthetics called the aesthetics of silence [22]. Each one of the previous pioneers had his own 'minimalist' approach whether functional, structural, or philosophical. Their works became inherited treasures fall under the umbrella of Modernism. Next generation who followed minimalism are Ando, Predock, Pawson, Barragán, Baeza, Scarpa, Legorreta, de Moura, Siza, and Zumthor. They aim to achieve balance between architecture and nature through aesthetics of silence and simplicity of form, surface, and detail [23]. From the previous part, it can be concluded that those architects have a unique perspective towards nature. They enter it into spaces in a way or another. According to James Steele in his book "Architects Today", and according to author's experience during his visit to the German Pavilion in Barcelona documenting its spaces, a group of architectural elements can be deducted to be used as "design criteria" analyzing language of minimalism. These elements are: walls/partitions, material, colour, glass, light, landscape, and stairs/handrails. Each element interacted with nature.

6. CRITERIA OF DESIGN BY MINIMALISM

Based on the preceding, the paper can build design criteria consisting of the above elements which can be formulated in the shown Table 1.

In the next part, works of three 'minimalist' architects will be analyzed to understand this approach in the contemporary architecture, using the mentioned design criteria. Concluded 'minimalist' language for each project will be highlighted with bold line in the design-criteria table.

Table 1. Design criteria used to analyze the 'Minimalist' projects.

Walls/ Partitions	Material	Color	Glass	Light	Landscape	Stairs/ Handrails
Opaque	Fairface Concrete	White	Minimum mullions	Maximum to contact nature	Green Elements	Non-Risers
Transparent	Steel	Grey	Wide non- mullions	through religious shape window	Water Elements	Non- Handrail Stair
Combined	Marble	Monochro mic Color	Skylight	Artificial light	Topo- graphy	Non-mullion handrail stair
Layers	Glass	Multi- Colors	Slot on façade	Technical projections	Artificial landscape	Suspended stair

7. EXPERIENCING WORKS OF THREE MINIMALIST ARCHITECTS

Tadao Ando, Luis Barragán, and Alberto Campo Baeza are three important architects who produced 'minimalist' works deserved to be experienced. The paper selects them specifically because they produced three different minimalist approaches and because they came from diverse cultures. In addition, critics and theoreticians agreed that their works became landmarks of 'Minimalism' in the second half of 20th century. In this discourse, the paper will analyze chosen projects for them according to an order of which architect started to use minimalism in his design language first.

7.1 Luis Barragán – “Minimalist Projects From 1950s To 1970s”

This Mexican architect focused on the connection between perfect planes, elegant lighting, and careful consideration of void spaces left by removal of three-dimensional shapes from design. As a religious man, his works have been described as 'mystical' as well as serene. He believes that architecture must avow religious spirituality. Barragán's minimalist concepts depended on beauty, inspirations, magic, spellbound, enchantment, as well as the concepts of serenity, silence, intimacy, and amazement [24]. Due to his influence by rural life, Barragán abstracted all rural images into his minimalist design language which is: “raw materials as wood and stone, pure horizontal planes, green area, water elements, horses, stables, terraces, multi-color simple geometries, shiny colors as 'pink, rose, white, light blue, light

brown', walls of stucco, adobe, timber, horses' stables, all interacting with Nature". Barragán called himself a landscape architect. Pawson, in his book "Minimum", indicates that unlike the minimalist architects, Barragán used color in his minimal spaces and forms [25].

7.1.1 Cuadra san cristóbal, los clubes, mexico city, mexico, 1968

One of Barragán's Mexico City masterpieces is Cuadra San Cristóbal. This residential cluster is a part of a project called 'Los Clubes' or the 'Clubs' which includes three parts: "Cuadra San Cristóbal, la Casa Egerstrom which is a house for a Mexican family, and la Fuente de los Amantes or the fountain of lovers".

As shown in Fig. 14, this cluster has a four-bedroom main house, a staff apartment, and two pools: one for people and another for horses. It was a serious trial from Barragán to bridge the gap between man-made architecture and that found in nature. Water plays a key element in bridging between areas of the property. As a result, visitor may feel a lot calmer. The property is 30,245 m², with the main house having four bedrooms and five and a half baths. There's also a guest house and of course, endless expanses for horses. Barragán aimed to achieve the balance between indoor and outdoor, with light and dark. As shown Figs. 15-20, he architecturalized nature inside buildings which creates feeling of silence and breathtaking [26]. Additionally, there is a fluidity that is embraced and promoted within the design, the bold idea that minimalist geometric lines go in harmony with architect's imagination, or softened with use of color and texture - not restricted by generic building materials, but harnessing the power of the elements water and earth [27].



Fig. 14. Plan of Cuadra San Cristóbal represents simple geometries, minimum details, and harmony with nature.



Figs. 15-20. Shots represent simplicity of forms, bright multi-colors, and a dialogue between architecture and nature.

In Table 2, minimalism's design criteria can be highlighted as follows:

Table 2. Minimalism-criteria used to design 'Cuadra San Cristóbal'.

Walls/ Partitions	Material	Color	Glass	Light	Landscape	Stairs/ Handrails
Opaque	Stucco, Timber, Adobe	White	Minimum mullions	Maximum to contact nature	Green Elements	Non-Risers
Transparent	Steel	Grey	Wide non- mullions	through religious shape window	Water Elements	Non- Handrail Stair
Combined	Marble	Monochromic Color	Skylight	Artificial light	Topography	Non- mullion handrail stair
Layers	Glass	Multi-Colors	Slots on façade	Technical projections	Artificial landscape	Suspended stair

The concluded Barragán's minimalist language is: “opaque walls, row materials, multi-colours, slots not windows, maximum rays of daylight, greenery and water elements. He calls for nature through simple architectural elements”.

7.2 Tadao Ando – “Minimalist Projects From 1970s Till Now”

The Japanese minimalist architect, Tadao Ando conveys the Japanese traditional spirit and his own perception of nature in his works. His design concepts are materials, pure geometry and nature. He normally uses fairface concrete or natural

wood and basic structural form to achieve austerity and rays of light in space. He sets up dialogue between architectural space and nature through simple geometries and specific openings [28]. Two minimalist projects for Ando will be analyzed as follows:

7.2.1 Church of the light, Ibaraki, Osaka, Japan, 1989

It is perhaps the ultimate minimalist statement, a pure example of the combined power of space and light. Built for Ibaraki Kasugoaka Church, a member of the United Church of Christ in Japan, Ando's chapel is a rectangular concrete box intersected at a 15° angle by a freestanding wall; the chapel's most remarkable feature is the cruciform opening behind the altar, which floods the interior with light as shown in Fig. 21. Entering the building requires an act of will and awareness via the turning directions from an angle to another as shown in Figs 22-23. This diagonal wall aims to create unexpected surprise of full dark space lighted only with cross-cut light as a blessed space by God.

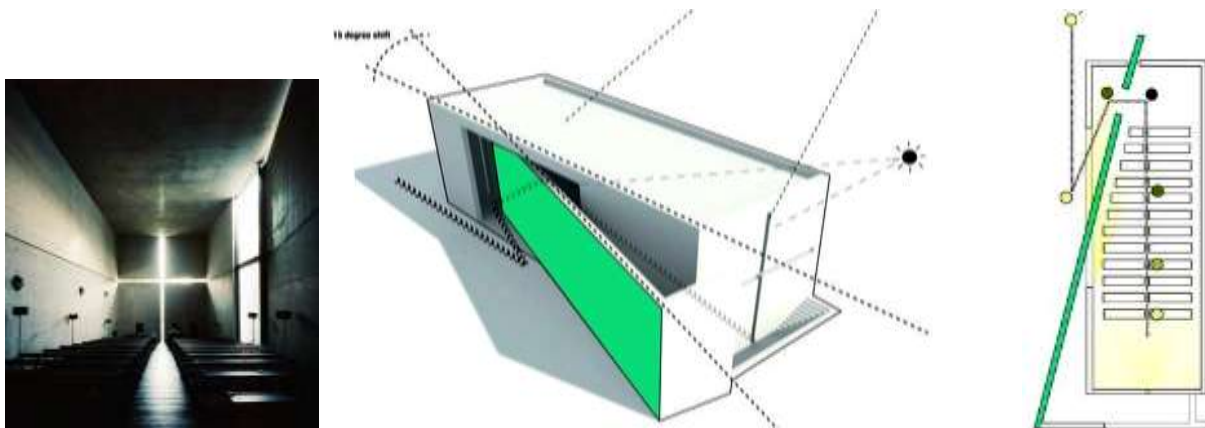


Fig. 21. Tadao Ando, 'Church of the Light', Japan, 1989. Figs. 22-23. Sketches of 3d & plan represent the diagonal wall directing visitors to the entrance.

Within, rough-textured floors and pews are made from dark-stained scaffolding planks emphasizing starkness of design. In an unusual configuration, the floor descends in stages towards the altar, which is next to the rear wall, whose horizontal and vertical openings form a cross, flooding the space with light. Ando designed a place that bringing to mind the words of Christ, 'For where two or three are gathered together in my name, there am I in the midst of them' "Mt. 18, 20". On total area

113m2, this church projects an image of simplicity, which is confirmed by the unusual downward-sloping floor. This fact symbolizes 'Jesus Christ who came down to the lowest of us all.' Ando says that he would have preferred to leave the glass out of the cross-shaped opening, allowing the wind to enter just as the light does, but climatic conditions in winter rendered this solution unacceptable [29]. In his book "Tadao Ando", 1995, the Italian historian of architecture Francesco Dal Co explains that this church represents an effort to architecturalize the sense of silence through the natural element of light. Space is nearly completely surrounded by concrete walls. Inside is true darkness. In that darkness floats a cross of light itself. Outdoor light that has been architecturalized by the opening in the wall imparts tension to the space and makes it sacred [30].

In Table 3, minimalism's design criteria can be highlighted as follows:

Table 3. Minimalism-criteria used to design 'Church of the Light'.

Walls/ Partitions	Material	Color	Glass	Light	Landscape	Stairs/ Handrails
Opaque	Fairface Concrete	White	Minimum mullions	Maximum to contact nature	Green Elements	Non-Risers
Transparent	Steel	Grey	Wide non- mullions	through religious shape window	Water Elements	Non- Handrail Stair
Combined	Marble	Monochro mic Color	Skylight	Artificial light	Topo- graphy	Non-mullion handrail stair
Layers	Glass	Multi- Colors	Slots on façade	Technical projections	Artificial landscape	Suspended stair

The concluded Ando's minimalist language in designing this church is: “opaque walls, grey fairface concrete, slots not windows, cross cut in façade to enter daylight symbolizing existence of God. This language generates sense of silence and awe”.

7.2.2 Museum of design sight, Tokyo, Japan, 2007

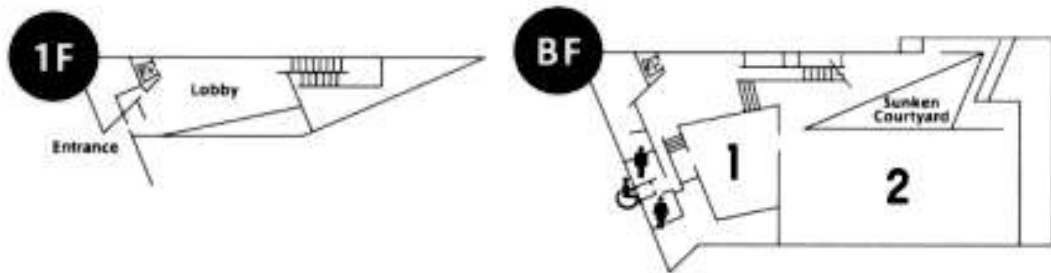
In the mid-town of Tokyo, Roppongi Station, Ando designed a museum as a venue to redirect eyes to everyday things and events, and create various proposals and communicate numerous discoveries from design point of view. Museum's exhibitions

focus on diversified program that includes talks and workshops. It is a launch pad that provides the vision “sight” to search for, discover, and make things indispensable to times and design as culture that enlivens daily lives [31].

Inspired from Issey Miyake's concept in clothing design of 'A Piece of Cloth', Ando devised the idea for the roof as one sheet of folded steel shown Fig. 24. 70% of structure's volume is built underground where two galleries and a naturally lit sunken court create a dynamic atmosphere, shown in plans Figs. 25 & 26. It can be noticed from details of interior shots, shown Fig. 27 – 29, the using of minimalism.



Fig. 24. Tadao ando, 'Museum of Design Sight', Tokyo, Japan, 2007.



Figs. 25-26. Museum's plans represent spaces with minimum number of details and partitions.



Figs. 27-29. Interior shots represent fairface concrete and non-mullion glass handrails. Photographed by the author, during visiting Tokyo, 2013.

In addition to the roof, the building incorporates Japan's world-leading technology such as the longest sheet of double-glazed glass in Japan, which considers

a large window that looks out to the outdoor nature, shown Fig. 30. This achieves simplicity and silence of architecture and enhances light, wind, time and nature in space.

Ando functions fairface concrete walls to be interactive surfaces. In one of museum's spaces, an interactive wall in a dark room is designed to present light projections according to visitor's movement, shown Fig. 30. Another interactive wall is designed to reflect visitor's figure on white wall with no mirrors, shown Fig. 31 [32].



Figs. 30-31. Interior shots represent long non-mullion glass panels & artificial light projections. Photographed by the author, during visiting Tokyo, 2013.

In Table 4, minimalism's design criteria can be highlighted as follows:

Table 4. Minimalism-criteria used to design 'Museum of Design Sight'.

Walls/ Partitions	Material	Color	Glass	Light	Landscape	Stairs/ Handrails
Opaque	Fairface Concrete	White	Minimum mullions	Maximum to contact nature	Green Elements	Non-Risers
Transparent	Steel	Grey	Wide non- mullions	through religious shape window	Water Elements	Non- Handrail Stair
Combined	Marble	Monochro mic Color	Skylight	Artificial light	Topo- graphy	Non-mullion handrail stair
Layers	Glass	Multi- Colors	Slots on façade	Technical projections	Artificial landscape	Suspended stair

The concluded Ando's minimalist language in this museum differentiates between long non-mullion glass contacting with nature, grey interiors covered by fairface concrete, non-mullion glass handrail, and using technical light projections on walls.

7.3 Alberto Campo Baeza – “Minimalist Projects from 1980s Till Now”

This Spanish architect values concepts of “idea, light, and space” into his works. Idea is to meet function and context of space, forms and construction. Light is essential and achieves relationship between inhabitants and the building. Space is shaped by minimal geometric forms to avoid decoration that is not essential [33].

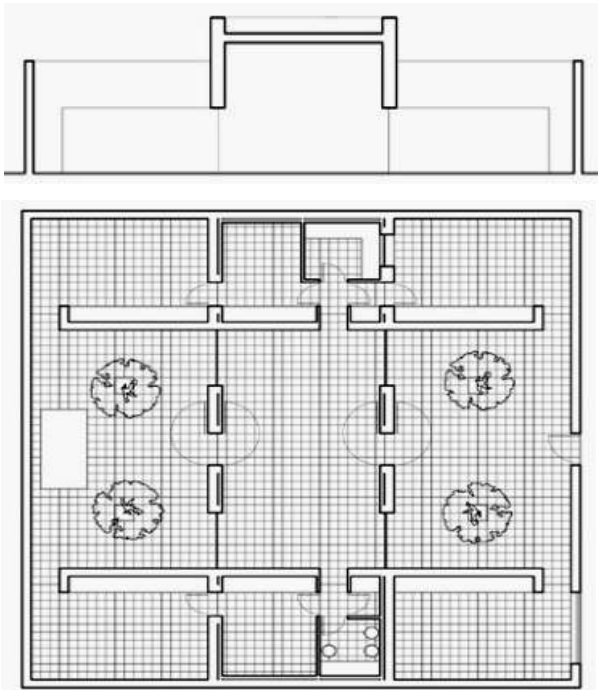
7.3.1 Gaspar house, zahora, , cádiz, spain, 1992

It is a residence that client requested to be independent. High walls create an enclosed space and stone floors used in house and courtyard show continuity of interior and exterior. The white color of walls reveals the simplicity and unity of the building. The feature of the structure makes lines to form the continuously horizontal house, therefore natural light projects horizontally through the building [34].

Baeza's concept was 'Hortus Conclusus' or Closed Grove. The owner of this house is an artist who wished to own a unique grove full of light and trees to be his resting place there. As shown Figs. 32 & 33 plan and section, Baeza designed the floor out of stone and walled in with four, high, white walls. “White walls, light and shadow, planting orange and lemon trees, using large interior spaces”, shown Figs. 34-35, were the elements that used to create a spiritual architecture that may let the user feel he is in Paradise [35]. After building his house, the artist thought that its spaces represent idea of 'present absence' full of light, silence, and beauty. These symbolic meanings changed the traditional architecture to be utopia emphasizing silence and mediation by meaningful light that Baeza created for the artist to live happily ever after [39]. In Table 5, minimalism's design criteria can be highlighted as follows:

The concluded Baeza's Minimalist language is “simple geometry, white color, flat surfaces, clear wide areas, natural light, and planting trees of incense”.

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Figs. 32-33. Section and plan of Gaspar House represent minimum walls and simple structure system.

Figs. 34-35. Down, 'Gaspar House' from outdoor is as a white box of high walls. Up, the court inside reflects minimalist space with white walls, trees, and non-mullion glass.






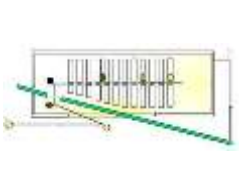
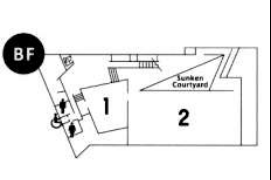

Table 5. Minimalism-criteria used to design 'Gaspar House'.

Walls/ Partitions	Material	Color	Glass	Light	Landscape	Stairs/ Handrails
Opaque	Concrete with white painting	White	Minimum mullions	Maximum to contact nature	Green Elements	Non-Risers
Transparent	Steel	Grey	Wide non- mullions	through religious shape window	Water Elements	Non- Handrail Stair
Combined	Marble	Monochro mic Color	Skylight	Artificial light	Topography	Non- mullion handrail stair
Layers	Glass	Multi- Colors	Slots on façade	Technical projections	Artificial landscape	Suspended stair

8. COMPARISON BETWEEN THE CASE STUDIES

After experiencing works of the three minimalist architects, Ando, Barragán and Baeza, a comparison can be held to extract the specific similarities and differences between their languages as shown in Table 6, shown next page.

Table 6. Comparison between the case-studies.

Architect	Luis Barragán	Tadao Ando		Alberto C. Baeza	
Project					
	Cuadra San Cristóbal	Church of the Light	Museum of Design Sight	Gaspar House	
Location	Mexico	Japan	Japan	Spain	
Plans					
	Simple squares	Simple rectangle	A triangle intersected with a rectangle	Simple square	
Minimalism Design Criteria	Walls/Partitions	Opaque + Layers	Opaque	Transparent + Combined	Combined
	Material	Stucco, timber, & adobe	Fairface concrete	Fairface concrete, steel, & glass	Concrete with white painting + Glass
	Color	Multi-Colors	Grey	Grey	White
	Glass	Slots of façades	Two slots on façade	Wide non-mullions	Wide non-mullions
	Light	Maximum to contact with Nature	Through religious shape window	Maximum to contact with Nature + Technical Projections	Maximum to contact with Nature
	Nature	Green & Water elements	Green elements	Green elements	Green & Water elements
	Stairs/Handrails	-----	Non-handrail Stair	Non-mullion handrail stair	-----

According to the comparison, the similar design language: “simple plans, pure forms, clear walls, flat surfaces, maximum area of non-mullion glass allowing maximum light to enter spaces, harmony with green and water elements”, while the three architects differentiate in concepts, representations, and colours. It can be figured out that philosophy of those architects and their way of life translated to be design minimalist language. They reflected their dogmas into architectural representations.

Barragán's philosophy depends on unifying with nature, mediation, and simplicity of rural life, while Ando's philosophy depends on austerity, spirituality, and architecturalizing nature. Baeza's philosophy depends on intangibility, transparency, and influencing by what good man can face afterlife.

9. CONCLUSIONS

Finally, through reading and interpreting language of 'Minimalism' in architecture, the paper may reach the following conclusions:

- a. Philosophy of 'Minimalism' generated a very unique language of architecture that transfers users physiologically into a spiritual atmosphere of mediation and feeling with being enchanted.
- b. Intentions beyond using 'Minimalism' differentiate between religious, mystic, social, or even political intentions.
- c. In 'Minimalism', Nature became architecturalized through clear spaces and simple geometries. This approach created a harmonies dialogue between elements of architecture and elements of nature.
- d. Using 'Minimalism' in architecture adds new value of beauty through simple structures with non-joints.
- e. Qualities and ideals of minimal architecture may prove to be enduring; for as life itself becomes increasingly fragmented, intangible, and uncertain, the innate human desire for the calm space, the comfort of solid materials and the contemplation of slow-moving nature, may become ever more powerful.
- f. In architectural design education, some students follow 'Minimalism' approach and it proved successful output.
- g. Minimalism and science fiction may have contributed to the late twentieth century futuristic architecture design and modern home decor. Minimalism became an essential core for 'smart minimalistic home architecture' which led to free living style by removing all unnecessary needs.
- h. 'Minimalism' became a way of life. It became a system that enters in many fields; diets “focusing only on eating useful food”, studying “focusing only on cores of

courses”, clothes “minimum clothing of what is needed”, packing “just pack minimum number of stuff”, socialization “focus on making relations with specific persons”, furnishing “depending on ultra modern style without ornaments”, and work “reducing tasks to just achieve the important ones and delegating what can be delegated”. People who follow 'Minimalism' as a way of life think they can be happier and quicker work achievable.

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REFERENCES

1. Christopher, W., “Minimalism”, 3rd Edition, Oxford University Press, London, 2009.
2. “The American Heritage Dictionary of the English Language”, 4th Edition, Houghton Mifflin Company, New York, 2009
3. www.theminimalists.com/minimalism/ Access: 14/9/2014
4. Saito, Y., “The Moral Dimension of Japanese Aesthetics”, *Aesthetics & Art Criticism*, Vol. 65, pp. 85-97, 2007.
5. John, P., “Minimum”, 1st Edition, Phaidon Press, London, 1996.
6. Edward, S., “Minimalism: Origins”, 2nd Edition, Indiana University Press, Indiana, 2000.
7. Antoniades, A. C., “Poetics of Architecture: Theory of Design”, 1st Edition, John Wiley & Sons, Montreal, 1992.
8. Barbara, R., “ABC Art”, *Art in America*, Vol. 5, pp. 57-69, 1965.
9. Hannah, W., “Yves Klein, 1928-1962: International Klein Blue”, 1st Edition, Taschen, Köln, 1994.
10. James, M., “Minimalism: Art and Polemics in the Sixties”, 2nd Edition, Yale University Press, Yale, 2004.
11. James, M., “Minimalism”, 6th Edition, Phaidon Press, London, 2010.
12. Clare, M., “On Minimalism in Architecture”, *Architectural Design*, Vol. 64, p.p.7-8, 1994.
13. Alison, M., “John Pawson: Plain Space”, 1st Edition, Phaidon Press, London 2010
14. Ilka, R., Andreas, R., & Angeli, S., “Minimal Architecture”, 1st Edition, Prestel, New York, 2003.
15. Aurora, C., “From Minimalism to Maximalism”, 1st Edition, HarperCollins, New York, 2002.
16. Franc, B., “Minimalist Architecture”, 1st Edition, Birkhäuser, Basel, 2002.

17. Joshua Fields, M., & Ryan, N., "Minimalism: Live a Meaningful Life", 1st Edition, Asymmetrical Press, Montana, 2011.
18. Eknath, E., "The Bhagavad Gita - Classics of Indian Spirituality", 2nd Edition, Nilgiri Press, New Delhi, 2007.
19. Sofia, C., "Minimalism: Minimalist", 5th Edition, H.F. Ullmann, Potsdam, 2007.
20. James, S., "Architects Today", Phaidon Press, London, 2001.
21. Tullia, L., "Pier Luigi Nervi: Minimum Series", Ore Cultura Srl, Rome, 2009.
22. Shinohara, Kazuo, "Kazuo Shinohara: Works and Projects", Ernst & Sohn, Berlin, 1994.
23. Cerver, F. A. , "The Architecture of Minimalism", Hearst Books international, 2nd Edition, New York, 1997.
24. Luis, B., "Escritos y conversaciones", 2nd Edition, El Croquis, Madrid, 2000.
25. Emilio, A., "The Architecture of Luis Barragán", 1st Edition, The Museum of Modern Art, New York, 1976.
26. Jose M. B. J., & Juan, P., "The Life and Work of Luis Barragán", 1st Edition, Rizzoli, New York, 1997.
27. <http://www.mademansion.com/cuadra-san-cristobal/> Access: 8/10/2014
28. Dal Co, Francesco, "Tadao Ando: Complete Works 1969-1994", 3rd Edition, Phaidon Press, London, 1997.
29. Philip, J., "Ando: Complete Works 1975-2014", 6th Edition, Taschen, Köln, 2014.
30. Dal Co, Francesco, "Tadao Ando: Complete Works 1969-1994", op.cit.
31. Catalogue of "Museum of Design Sight", distributed to visitors in the entrance's counter.
32. Experience of the author while visiting Tokyo, March, 2013.
33. Various authors, "Alberto Campo Baeza, Idea, Light and Gravity", 1st Edition, TOTO, Tokyo, 2009.
34. Campo, A.B., "Campo Baeza 1971-1996", 1st Edition, Munilla Lería, Madrid, 1996.
35. <http://www.paulamontessketchbook.com/2010/06/gaspar-house-by-alberto-campo-baeza/> Access: 9/10/2014

لغة "الاختزالية" في العمارة

يهدف البحث إلى قراءة وتفسير لغة "الاختزالية" في العمارة وفهم ماهية العناصر التصميمية التي عندما تستخدم يكتسب الفراغ المعماري صفة الاختزال، وتمت محاولة الكشف عن فلسفة "الاختزالية" وبحث أصولها والتوصل لمعاييرها التصميمية، وتحليل أعمال (أندو، باراخان، بايزا) لفهم اللغة المعمارية التي يستخدمها كل منهم وكيف أصبحت هذه الأعمال علامات معمارية مميزة، وتصول البحث الى عدة نتائج أبرزها أن هذا الاتجاه أصبح يتحكم في الطبيعة بإدخالها إلى الفراغ المعماري والتواصل معها من خلال تشكيلات هندسية بسيطة صانعاً حوار بين العناصر المعمارية وعناصر الطبيعة.