



SCHOOL OF ARCHITECTURE • BUILDING • DESIGN

Centre for Modern Architecture Studies in Southeast Asia (MASSA)

Bachelor of Science (Honours) in Architecture

ARCHITECTURE CULTURE AND HISTORY 2 [ARC 60203]

PROJECT: PRECEDENT STUDY

Essay (20%)

NAME OF BUILDING: BARCELONA PAVILION

ARCHITECT: LUDWIG MIES VAN DER ROHE

BY:

LIM JIAN JUN (0316867)

TEH GIE ENG (0316179)

YEOW YI CHUAN (0317576)

LOO MEI CHUEN (0316379)

JOANNE BERNICE CHUA YUNN TZE (0315905)



BARCELONA PAVILION

Barcelona Pavilion, originally named the German Pavilion, was designed by Ludwig Mies van der Rohe and completed in 1929. As part of the 1929 International Exposition, the building housed the official opening of the German section of the exhibition in Barcelona, Spain. It was then disassembled in 1930. Over the years architects began to realize just how influential the Pavilion had come to be, consequently the Barcelona City Council decided to reconstruct it. With a great deal of research and help by prominent architects, work began on the reconstruction in 1983 and was completed in 1986. Great care was taken to ensure that materials were sourced from the same locations as the original building.

Mies' design exhibits minimalism, and was based on his dictums "*Less is more*" and "*God is in the details*". Mies also applied Kasimir Malevich's Suprematism into his design, focusing on fundamental geometric forms and using only a limited range of colors in the building. Presently, it has become a key reference for architecture in the modern century.

The 5 themes that we've chosen to analyze on for this building are spatial organization, structure, materials and construction, components, massing and form, and the external façade.

SPATIAL ORGANIZATION

by

JOANNE BERNICE CHUA YUNN TZE

Mies' concept for Barcelona Pavilion was to create a tranquil place that would blur the interior and exterior. By implying his dictum "Less is more" with Suprematism, an art movement that he was so enticed by which emphasised on the use of fundamental geometric forms, he designed the pavilion to have a fluid open plan with minimal structural framework, as well as using basic rectangular forms to arrange the spaces within the pavilion.

The grid system served as an underlying framework that the wall systems work within. Wall planes were placed asymmetrically but in parallels, so that they appeared to slide past each other in a space. The sliding walls elongate the space and maintain the continuity across the plane. The interior worked together with the low roof planes to induce movement, whereby the viewer could walk more or less endlessly without ever being stopped within a cubical area.

The pavilion is designed as a proportional composition where the interior of the pavilion is juxtaposed to two reflecting pools. The smaller reflecting pool behind the interior space allows light to filter through the interior volume as well as illuminate the marble and travertine pavers. The larger reflecting pool compliments the volume as it stretches across the rest of the plinth, emitting a sense of calmness and reflection of light throughout the building.

The plan illustrates the dominance of space over the display of any objectified element. Mies intentionally offset the cruciform columns from the walls to show that the columns were load bearing, which then allowed him to use a larger overhang and glass walls to represent his concept of bringing the outside in. It is conclusive that the spatial arrangement for Barcelona Pavilion was able to portray Mies' philosophy. The use of simple sleek lines and fluid open spaces depicts his dictum of "Less is more", through which clarity and simplicity leads to a good design.

MATERIALS, CONSTRUCTION & STRUCTURE

by

LOO MEI CHUEN

The materials used in Barcelona Pavilion are one giving the building its true architectural essence. In all of his designs, Mies insisted on the most elegant and expensive materials. This appreciation is displayed in the Barcelona Pavilion with his use of travertine, onyx and marble. His marbles' implementation is created through a process of splitting called broaching, that created a symmetrical pattern that's found in the marble. While the roof is supported by the chrome-clad cruciform columns, giving the impression of a floating roof.

In this building, onyx is used and situated so that when one enters the room, the chairs and those sitting there are the first sight, implying that you have just been invited to an audience with the royalty and felt welcomed to the room.

The oft-used material in Barcelona Pavilion is the Italian travertine. When travertine is exposed to the sun, it becomes illuminated almost as a secondary light source that dissolves the natural stone and washes the light over the space, this further adds to the dissolution of spatial demarcation transforming the pavilion into one continuous volume rather than two separate entities.

In this building, glass is also used because its transparency allows the viewers to see the outside to the front and through the house from one end to the other, making the space seems unending. By using glass, Mies was able to guide the viewers' eyes to where he wanted the view to go, experiencing the blurred spatial between the interior and the exterior. This demonstrates the resilient and unending nature of the German culture.

Materials in this building have different characteristics that bring out contrasts, such as hardness of travertine, softness of water, transparency of glass and opaqueness of onyx. Overall, the materials used in Barcelona Pavilion are straight and strong eliciting a sense power, giving rise to a masculine architecture that evoked strength and hope while giving the effect of elegant serenity and different experiential qualities.

COMPONENT

by

YEOW YI CHUAN

The cruciform steel columns and the tinted glass screens are the components that allowed Mies van der Rohe to bring out the weightlessness and minimalism of Barcelona Pavilion.

First of all, the low flat roof is used as a tool to portray the weightlessness of Barcelona Pavilion. The low horizontal orientation of this building that emphasized by the low flat roof is made possible by the support of these cruciform steel columns. The white ceiling unite clearly with the interior, with the mirror-like finish on the cruciform columns that hides them in between the transparent glass screens to make the whole building look like it almost disappears, thus giving others a wrong impression that the roof is 'floating'. This sensation of floating, the isolation of walls, together with the widespread use of glass give a sense of weightlessness of Barcelona Pavilion, perfectly describe Mies' character of works.

Then, various tinted glass screens are used in Barcelona Pavilion to create a simple, free flowing open space to display minimalism. Due to the high specular reflectance of natural stones inside the building and transparency of the glass, visitors may capture the view framed by Mies, experience the blurred spatial demarcation between interior and exterior of the building. This allowed Mies to successfully delineate the harmonious play of light to exhibit his philosophy (minimalism).

As conclusion, Mies van der Rohe's masterpiece, the Barcelona Pavilion wonderfully externalize his aphorisms "less is more" by using the simple lines and geometry which is extracted from Kasimir Malevich's suprematism to make up the flexible, complex open plan.

MASSING / FORM

by

LIM JIAN JUN

Mies wanted to design the Barcelona Pavilion to be an ideal zone of tranquility for weary visitors. Therefore, Mies designed Barcelona Pavilion with light massing, together with the inspiration of Suprematism in the spatial design. Mies has applied the concepts of emptiness and continuity throughout the building and this allows the building to look weightless and stays afloat on the reflection of its own.

The massing composition of the Barcelona Pavilion is made of a void rectangular cubic. Mies used thin pillars and non-bearing wall planes to replace the conventional enclosed load bearing walls. This freed the building from the rigid external structure design and helped to achieve the floating effect. The idea of using thin cruciform pillars with mirror finishes gives an impactful floating experience to the building as well. This can be witnessed where the big area of slim entablature is supported contradictly by only eight thin pillars and unloaded walls. With the use of transparent materials, it flourishingly gives the massing of the building a sense of weightlessness that hovers above the planes and volume. The overhang slab is extended out and projecting over the exterior. The translucent volume created underneath the building unleashed a sensation of lightness and emptiness, blending the spatial distinction between the interior and exterior.

The openness and the floating effect have made the massing of the building light. It is illustrated in the form of the building, with the free plan and the extreme simplicity of the geometry which gives the strength to the pavilion. One can say that Barcelona Pavilion is a great example of the minimalism architecture supporting his philosophy and the theme “less is more” seems perfectly appropriate, which Mies so famously often said.

EXTERNAL FACADE

by

TEH GIE ENG

The Barcelona Pavilion 1929 was one of the most influential edifices to be ever built, directing architecture's modern progress. Drawing inspiration from the Suprematist art movement, the architect, Ludwig Mies van der Rohe designed the Barcelona Pavilion with a strategic layout of walls to convey simplicity, clarity and honesty, which is evidently projected in its façade.

Armed by his own philosophy of architecture, "Less is more", Mies van der Rohe designed the facade to feature honest planes of stones and glass arranged in parallel and perpendicular manner, allowing openness to be a consistent theme. As a result of strategic placing of the walls and glass, this creates a complex sensation of experiencing the exterior while being in the interior and vice versa. This allows a harmonious and balanced rhythm of transition when one walks into the pavilion from the outside as the exterior and interior blends together. Enhancing this intricate experience is the selection of the four types of earth-toned marbles to blend with nature outside and also aids in the perception of spaciousness.

The pavilion is raised above its surrounding and rests on a travertine plinth, which allows visitors to slowly retract from the surrounding busy cities and enter into a tranquil and serene space as they walk up the plinth. Almost immediately greeting the visitor is a shallow pool which reflects the walls and roof, enhancing the tranquility in the atmosphere. The low profile of the roof which appears to be a floating plane above the interior volume and the width of the building also projected an image of composure.

In conclusion, by using a simple plan to develop a clean facade, van der Rohe was able to deftly manipulate a visitor's experience to revel in the serenity and tranquility projected by the openness of the façade, and thus encapsulates his principle of "Less is More".

LIST OF REFERENCES

- Jackson, C. 2007. I WISH I'D DONE THAT. *Building Design*, 21 September , p.19.
- Ursel Bergel, Thomas Pavel (2007). Barcelona Pavilion: Mies van der Rohe & Kolbe: Architecture and Sculpture. Germany: Jovis; mul edition. 192.
- Josep M. Rovera (2008). Pabelló Mies Van Der Rohe: Reflections . Spain: Triangle Postal. 72.
- Zimmerman, Claire (2006). Mies van der Rohe: 1886-1969; The Structure of Space. Hong Kong: Taschen. ISBN 3-8228-3643-5.
- Weston, Richard (2004). Key Building of the Twentieth Century: Plans, Sections and Elevations (Key Architecture Series). W.W. Norton and Company. ISBN 0-393-73145-6.
- Borden, G. P. (2014). *Process: Material and representation in architecture*. p. 159
- Kroll, Andrew. "AD Classics: Barcelona Pavilion / Mies van der Rohe" 08 Feb 2011. ArchDaily. Accessed 09 Apr 2014. <<http://www.archdaily.com/?p=109135>>