

A NEW ATTITUDE TOWARDS CONCRETE IN IBERO-AMERICA: FROM MONOTECTONIC TO POLITECTONIC ARCHITECTURE

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Concrete is a material that it is mostly associated with strength, roughness, and persistence in time. But during the years, architects have used this material to either empower even more these aspects or to evoke the exact opposite, delicacy and subtlety.

In some cases, the evolution of the techniques wasn't the crucial part that led to the most impressive constructions, but the use and the design of the architects that have been able to see the material as something to play with rather than a list of set restrictions that come with it. Looking back in time, concrete has been used to build structures since the Classical era. The invention of the concrete was a complete revolution to the building systems and designs of the time, providing a much more durable, robust and compact solution. A lot of improvements have been made since then around the material and its construction, and it is even today when the material still surprises us with its versatility and advances on its composition.

In Ibero-America, as in the rest of the world, the use of exposed reinforced concrete went through a massive revolution with the end of the Second World

War, although the material was being used ever since the nineteenth century in some parts of the continent. The main movement that led this revolution was the Brutalism and the influence of Le Corbusier's work. The French architect brought new ideas to the architecture and the city planning of the time, making the concrete one of the most used materials in modern architecture.

One of the buildings that was a complete revolution for the time was Frida Kahlo's and Diego Rivera's house-studio in Mexico City, by the architect Juan O'Gorman. In the 1930s the artists trusted in the architect's taste and criteria for the design of their house-studio while they were in the US. The building broke all the aesthetic paradigms of the architecture of the time in Mexico by incorporating the ideas and theories that the most avant-garde architects were developing in Europe at the same time. The work, which was not very well accepted by the neighbors, incorporated the fundamental ideas of Le Corbusier and was conceived as a machinery of living, made by two independent concrete blocks connected by a narrow bridge on the rooftop.



Figure 1: Frida Kahlo's and Diego Rivera's Casa-Studio in Mexico City

At the same time, Felix Candela and his thin shell construction gave a new meaning to the word concrete. The architect introduced words such as light and thin to concrete buildings by taking the research in the techniques of concrete architecture to the maximum level. The interest of Candela was not only in the roughness of the material, but also on the experimentation and seeing how far he could stretch the techniques and craftsmanship of the concrete in order to explore the different results that he could achieve. The Los Manantiales Restaurant in Mexico City built in 1957 was also derived from continued geometric investigation and it's one of the most representative works of the architect. The striking roof is formed by four intersecting hypars, creating a stunning interior dining space.

After Candela's revolution in concrete architecture, the experimentation on the technical aspects of the construction has been explored by many other architects as well, such as Alvaro Siza on The Portuguese Pavilion of the Expo 98, where the huge and overwhelmingly thin canopy is the main feature of his design. Or on Santiago Calatrava's work, whose style bridges between structural engineering

and architecture, continuing Candela's ideas with his personal style.

Even if the experimentation on the limits of the technical aspects of the material still continues, and it is still the main theme of research for some architects; a new movement is going on now between contemporary Ibero-American architects, where the exploration is no longer in the techniques of the material, or in the same ideas that the brutalist pursued, but in the quality of the spaces that the concrete creates within it. In their work, it is obvious that the choice of a more rough and elemental material is made not because of the lack of knowledge of more refined techniques, but as an essential part of their projects.

One of the main differences in the way the contemporary Ibero-American architects approach the use of concrete, compared to their predecessors is the fact that almost none of them is "married" to any material in particular. The selection of the materiality of their projects is made in a more democratic manner, making that decision depending on each project and its context. Their approach to the materials is very honest and humble, understanding

each material and the qualities that they can bring to their projects. Therefore, not only they can master the art of building in concrete, as seen on the amazing buildings made out of this material in their portfolios, but they do also explore with compacted earth, as seen on Tatiana Bilbao's Ajijic house; steel, as seen on Derek Delekamp's Biblioteca Vasconcelos or stone, as seen on Anton Garcia Abril's SGAE Headquarters, to name some.

Even if nowadays the material options are endless and more globalized, the research around the use of the concrete in architecture is still a matter that interest and intrigues contemporary Ibero-American architects. In some cases, the strong solid and void contradiction that the concrete creates can be the leitmotif of their projects. In other cases, they even

rethink the whole construction process of the concrete to create very intricate and complex spaces with new techniques.

An excellent example of this is the work of the Mexican architect Alberto Kalach, in the Casa GGG. The project plays with the material in a very raw and elemental manner, comprising and expanding the different spaces within the house. The house is designed as a massive concrete piece that is fragmented along the house creating different cracks that allow the light to penetrate the geometry in a very magic and diverse manner. The house is inspired by the work of the Mexican sculptor Jorge Yazpik who's work also explores the space within the solid mass.



Figure 2: Casa GGG, Alberto Kalach

But it is the same architect the one that years later designed the Vasconcelos Library, creating a space where all the bookshelves hang from the ceiling using a steel structure. The use of the steel allows for almost "floating" catwalks, transparent floors, "floating" bookshelves... a sequence of moments and spaces would have been impossible to create without his elemental and humble manner to approach the selection of materials.

Located in the Chilean Coastline, the Poli House by Pezo Von Elrichshausen is also a sublime project where the same ideas about the use of the concrete are also stretched. In the house, it looks as if the space had been carved out of a chunk of concrete, with a very poetic and sculptural result. The mixed use of the house, which is both a dwelling and a cultural center, is also expressed on the duality of the interior spaces, that deal with a very private and a much more public uses. The rooms of the house have

no names and are undefined. The only thing that dictates a hierarchy in the rooms is the connection between spaces and their proportions. The use of raw and handmade concrete, and the way the wood used for the molding on the interior is reclaimed on the inside is a very smart way to work with the material, always using it to their advantage, instead of looking for its limits.

The Chilean architects describe their own work as “a machine that produces raw material from raw

material (...) to somehow process objects that seem very familiar but in a combination that might seem differently”. The main theme of research in their projects is the combination of shapes, the sequence of spaces and the connection between areas; therefore, the selection of the materials that they use in their projects comes as an answer to the context of each specific project and not as an obsessive use of any material in particular.



Figure 3: Poli House, Pezo von Elrichshausen, Chile

The same democratic approach to the material is applied to Tatiana Bilbao’s work. One of the main goals in the work of the Mexican architect is to connect the architecture to the context, the place, the

culture, the people... and the selection of the materiality is always made according to this principle. The Ruta del Peregrino project is a clear example of this same idea. The project was initially awarded to

Tatiana Bilbao, to create different points of interest, chapels, viewpoints... in a pilgrimage route to the Virgin of Talpa in the state of Jalisco, Mexico. The open chapel in Lagunillas is an installation that she did in collaboration with Derek Dellekamp, where they captured the shape of a Roman cross with four tall walls made out of concrete, creating a very symbolic and powerful space that the locals accept and feel part of. The sensibility to the site, context and people is clearly expressed in the project, and in the building process as well. The builders involved the locals in the building process even if they didn't need them to, in order to make them connect with the pieces and feel that they did by themselves for the pilgrims. The use of a much more sophisticated material would not have allowed this connection with the installation.

The recent Pritzker Laureate Alejandro Aravena's exploration in architecture is also always rooted to the culture, context, and people. Both his work and himself are a model of humility, where common sense and wisdom are always key factors in his projects. His practice is focused on social architecture that engages people, and the goal of all his efforts as an architect is to improve the people's quality of life.

On the Innovation Center of Santiago, one of the biggest challenges for Aravena was to face the problem of obsolescence on such an avant-garde program. As the architect says "A clean, direct and even tough form is in the end the most flexible way to allow for continuous change and renewal. From a stylistic point of view, we thought of using a rather strong monolithic materiality as a way to replace trendiness by timelessness." The monolithic and strong look is achieved with the use of exposed concrete on the exterior. The contradiction of the solid and empty spaces is also an answer to the timelessness, and this contradiction is not only expressed in the facade, but also in the interior spaces. While navigating the project, the continuous sequences of spaces, spaces and views accompany the people that work and gather in the Innovation Center.

The selection of the materials used on all Aravena's projects comes from an answer to a problem or necessity. He approaches each project as a new question or problem that he has to identify and solve by understanding and observing the people and society that will use the building. He uses the

materiality of the projects as a tool to connect the people and the buildings that he creates.

Another example of an interesting relation to materiality, and concrete, in particular, is the work of the Spanish architecture office Ensamble Studio. In their projects, the fabrication process of the materials, their raw properties, and constraints are always explored. In particular, in their project named The truffle, the fabrication process of concrete is reinterpreted. In this project a cow named Paulina played a key role in the construction process, as she ate the straw bale filled interior of an excavated concrete structure. The result of this experimental project is a very intriguing and complex interior and exterior space. The exterior geometry of the concrete has an interesting and uneven pattern that comes from the use of soil as formwork. The structure is used as a guest house on a breathtaking lot in the northern coastline of Spain.

Rethinking the construction process of materials is a common theme in the architecture of Ensamble Studio. By reconsidering this process, they find new opportunities to create new spaces, shapes, and fabrication methods that the standard and straightforward use of materials would not produce. Their innovative way to interact with projects and construction, instead of producing more complexity, reduces the unnecessary parts of the process, to use materials in the rawest and elemental manner creating very pure and intriguing projects.

The list of contemporary Ibero-American architects mastering the use of concrete is enormous, and these are only some examples of it. Having so many new materials, techniques and resources have brought a huge liberty and freedom to contemporary architects. What seems to be common in between these architects is that the approach to these endless options is made not only from the understanding of the material and fabrication and construction process; but also from a profound respect for the context, culture and use of each one of their projects. The selection of the materials is therefore based on much more solid ideas and principles that when the choice was done because of the lack of knowledge and uncertainty about other materials.

The same way that this architecture come from the understanding of all the current conditions around their projects, the ideas and innovation of these

architects comes from the study, direct impact and influence that their predecessors had on them. Thanks to all the previous research that has already done, they can now create state of the art projects using one of the most elemental materials of the time. It is from the attitude of the continuous look for growth and also from the study of what has already

been made, where the good architecture comes from. This approach creates an architecture that is rooted to its place, an architecture that is not capricious or superficial.