PROJECT: PORTUGAL STEEL DESIGN AWARDS I EUROPEAN STEEL DESIGN AWARDS 2019 – PORTUGUESE PROJECTS
Museo Guggenheim: a bilbaino lighthouse

It is evident that few works have played such a transformative role in the dynamics of a city as the Guggenheim Museum in Bilbao, designed by the mediatric architect Frank O. Gehry. This intervention that took place during the last decade of the last century allowed a region considered to be enormously depressed to become part of the world tourist circuits, giving this region of northern Spain a leading role that very few cities managed to achieve in such a short period of time. Even though it is one of the most emblematic works of this North American architect, it is still relevant how a work of architecture has achieved such great media prominence, allowing it to function as a primordial element of development and assume itself as the identity mark of a region.

Since the Guggenheim Museum is the herald of the transformation undergone in the city of Bilbao, it has leveraged a desired restructuring of the local economy, allowing an industrial production model to give rise to a modernized service activity. In addition, the success of this process has enabled, in general, the quality and quantity of tourist demand to increase the sustained development of other urban spaces, generating new needs, other centralities and different places of interest. In this last aspect, a single project has managed, in an innovative way, to be the engine for a wide spatial and territorial reconsideration, enhancing an unprecedented development. Also, this particular work made the prestige of Frank Gehry to leave strict American geography and the class of architects to become a mediatric phenomenon with global and world wide projection.

"I am an architect, but I do think that art and architecture come from the same source. They involve some of the same struggles. My first work, when I started to do my own stuff, was encouraged by artists, not by architects."

Frank Gehry*

Since its beginning, this ambitious project has been systematically considered as a megalomaniac, but fortunately the status of centrality that it attained very early on, it allowed it to function as a cultural agglutinator, fully justifying the enormous economic investment it motivated. Interestingly, the American institution that is behind the constitution of the important art collection of the 20th century and that constituted the great artistic heritage of the institution has its nerve center based in another iconic building that was created by Frank Lloyd Wright, located in New York.5

At the time of the project, the Guggenheim Foundation had as director Thomas Krens and was going through a huge crisis due to its deficit, since the revenues were much lower than the operating costs, which jeopardized its financial sustainability, with serious risks of its bankruptcy. In parallel with Bilbao, or even before, other locations were questioned, such as Venice, Salzburg, Vienna, Osaka, Graz, Tokyo, among others. In view of the difficulty of increasing revenues in New York, it became important to diversify the foundation’s sources of income, and for Krens, the worldwide spread of


Figure 1. Gehry drawing

the Guggenheim brand was a very credible possibility that would enable the institution to survive. In reality, the proposal behind the risky project by the director of Guggenheim was to franchise a brand with a planetary identity in the world of culture, something that with relative success had been achieved by McDonald in terms of fast food. In this sense, the Bilbao museum corresponds to a new star, which shines majestically, in a constellation called Guggenheim.4

The genesis of this project was the use of the artistic potential existing at the Solomon Guggenheim Foundation and the availability of the authorities of the Basque Country to support the costs of exhibition infrastructure. Although it was not a peaceful process in local terms, given the costs involved, the truth is that this project became predominant in the launch of the regional economy, constituting an engine of the economy of that entire region. Frank Gehry’s name appears first associated with a package made up of three architects, representing three continents (America, Asia and Europe), to which were added Arata


Figure 2. Render CATIA

Isozaki and Coop Himmelb(l)au.5 The representative of the American continent would be victorious in this competition, responding to an ambitious program of a wide exhibition area ingeniously articulated by several aggregated volumes, which allowed for a lower volumetric impact and a better integration in the built environment.

As a result of previous collaborative experiences with important artists, Gehry was very familiar with the type

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of requirements that would be at stake, namely with large sculptures and artistic installations that needed a lot of space. Perhaps because of this circumstance or even by direct consultation with them, he developed a proposal with very wide spaces, with balconies strategically placed that offered peculiar views and normally nonexistent in a space of this nature. In fact, Gehry offers visitors an exhibition space that, being prepared for the artistic requests of the end of the century, in other aspects is assumed to be a space of a competitive nature with the works it intends to offer for contemplation. The evident and systematic use of curvilinear shapes, which instill dynamic relationships within the building itself, encouraging movement so that there is an integral perception of space is something that in many of its aspects resembles some Baroque architecture, especially that of Francesco Borromini.

In addition to all the political issues associated with the implementation of the project, this exemplary work by the naturalized American architect, in multiple aspects, transcends his ideal of architecture and moves at a rapid pace into the fields of sculptural art with a colossal scale. In the way the project was implemented, it will be difficult to find points that tie shapes and volumes to that particular place, but from the perspective of the whole, it is difficult to imagine the project outside that specific place. This paradox is, perhaps, one of the aspects that best defines a work that gathers in its bosom a lot of technical prowess of conception and execution, which appropriates a disqualified place, which materializes in apparently disconnected volumes - with a chaotic aspect - and interiors few rationals, but which offer their audience a captivating atmosphere worthy of a society that seeks and sees itself in the show. At the program level, it was planned to implement three distinct areas for exhibitions, which should be added along with the normal technical and service areas, a restaurant, some shops and an auditorium.

The place chosen for the development of the project fell on an abandoned area, located on a curve, on the left bank, of the Río de Bilbao (resulting from the outfall of the Nervión and Ibaizabal rivers), in a place that was formerly occupied by an industrial area and that in the meantime entered obsolescence. This site had been a British cemetery from the 17th century to the beginning of the 20th, which is why it was also known as Campa de los Ingleses, which certainly contributed to the dock on Ría de Bilbao and which skirts the north facade of the Guggenheim Museum and has adopted the same designation – Muelle Campa de los Ingleses. According to reports, the option for that specific place was, in the first instance, the responsibility of Thomas Krens, very motivated by its location and also by the degraded aspect that the site presented, at the same time that due to the proximity of the Ría de Bilbao, it offered a enormous exploratory potential. It should be noted that this place assumes particular geographical value since it is at the center of gravity of a triangle defined by three important Basque buildings and with crucial functions in the dynamics of the city: the University of Deusto, the Museo de Bellas Artes and the Teatro Arriaga.

At the time of Gehry’s project, the left bank was basically a huge heap of industrial and metal ruins, with

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* A space with more “classic” seems, for the presentation of the museum’s permanent collection, a less conventional area for the use of contemporary artists and with idealized proposals for the exhibition space and a large lift for temporary exhibitions or for the presentation of works with monumental scale.
a very polluted, dark-colored river, leading the resident population to do their routines consciously, with their backs turned to the river valley. Traditionally, that region had specialized in the chemical and metallurgical industries, shared with multiple shipyards, so the crisis in these sectors, combined with very pronounced levels of pollution, was one of the triggers that lead to a huge economic depression in that area.

The lot, occupying a prominent position in the context of Bilbao, extends below the Ponte de La Salve, an important infrastructure of the city, the main axis of one of its main entrances and, interestingly, the first Spanish construction of steel tension members and decks, which was built in 1972 to connect a city that stretches along the two banks of the estuary. It was also from this bridge that Gehry idealized one of the accesses to the museum's implantation platform, by extending the building below it and then raising a tower that ensures better pedestrian accessibility — by stairs and elevator — for those coming from the right bank of the Ría de Bilbao. This body that extends and slides under the Ponte de La Salve houses a generous area of temporary exhibitions, at the same time that the finishing tower, due to the difficulties of using the space, has become a landmark and identity of the museum for those who cross the bridge of Ría de Bilbao.

The solution developed by Gehry presents very complex forms of variable geometry that are impossible to execute using traditional design and construction methods. In order to facilitate the development of the project, the architect used software designed for the aeronautical industry, called CATIA and developed by the French company Dassault. It should be noted that this was the first complex project by Gehry to use this software, since the first experience had occurred with the sculpture in the Olympic Village in Barcelona, the latter being a much more simplified and demanding process. Gehry's proposal would have been unthinkable a few years ago given the difficulty of geometric treatment of the shapes that characterize it and the almost certain impossibility of being able to produce those configurations using steel structures. Certainly, for the success of the enterprise, structural engineering excellence coordinated by Marvin Mass from the prestigious Skidmore, Owings & Merrill (SOM) studio in Chicago was determinant.

It should be noted that, taking into account the nature of the surfaces not showing any regularity, it would be extremely difficult and costly to be able to build such complex volumes with different materiality. In fact, that geometric complexity became viable in terms of implementation, mainly due to the fact that the molding of the different materials and the definition of their specific place was done through the systematic use of information technology and the use of very sophisticated construction processes. Even in the specific case of sandstones, computers were used in such a way that the entire process was carried out in a mechanized way, with a minimum of direct human intervention, greatly simplifying the entire process from design to execution. The particularity of this path is a clear proof that the future is not a mere linear projection of the past, but that the great advances — as is the case — generate discontinuities and offer solutions that are not expected or even plausible.

For the initial conception, Gehry elaborated a set of sketches that quickly gave way to study models constituted, essentially, by pragmatic volumes. Looking at the work, it is clear that there was first a very abstract and mental process and only after interacting with the place, the shapes and volumes were adjusted to the place. As the program stabilized and the organizational model was realized, the architect tested variations, experimented with volumetric alternatives, rehearsing shapes with more complex geometries, always without losing sight of the previous operation chosen for the building. This was certainly a way of formal investigation — decanting, filing imperfections and discontinuities — which, without calling into question the initial idea, allowed for a more refined research with the definition of more concise and conscious forms. Then, using sophisticated computer means and using a pen that read and recorded, by coordinated system, the different configurations it was possible to test its transformation into more geometrically regulated and parameterized forms. In order to check compatibility between the model initially made of cardboard and wood with the virtual model, a model was immediately developed through the use of a robotic milling machine, allowing the detection of formal anomalies or
incongruities. In its major part, the entire structure was developed in steel profiles, according to a logic of level layers, stratified, looking like a tangle of lines of force marked by horizontal rhythmic polygons in layers 3m high, which define the main structure, practically without the need to use expansion joints, transforming the building into a steel monolith.

From the point of view of exterior coating, glass, stone and sheet metal are basically used. In general, the glazed surfaces are a resource that solve the needs of space penetration and the lighting or ventilation of the interior space, not acquiring any preponderance in relation to the other coatings. In the case of stone and coating with titanium foil, they are the dominant material in the project, the first being used on flat or cylindrical surfaces and the second when the geometry of the shapes presents more complex configurations. It is a fact that the flexibility offered by a steel film in the shape of a mosaic, 0.38 mm thick, has an enormous capacity for molding and adaptability to surfaces with less regular layout. In some specific perspectives, the texture resulting from the facade covering sheets almost looks like a whirlpool of shiny, velvety scales\(^4\), imposing in a landscape very marked by anonymous architectures and with a parallelepiped aspect. This effect, very impressive, can resemble the organic shape of one or more fish. It is worth remembering that this theme is very dear to Gehry, just mentioning for example its use in the famous Peix (Goldfish) at Barceloneta Beach in Barcelona (1989-1992) or at the Fish Dance Restaurant in Kobe in Japan (1986-1987). One of the particularities of the work was the use of around 33,000 thin sheets of titanium which, thanks to its adaptability, allowed the definition of a succession of organic forms that make that building so characteristic. This strategy of using titanium, for shaping more complex shapes, had already been successfully tested by Gehry at the Vitra Design Museum in Germany, completed in 1989.

All these surfaces with an apparent free form, create optimized conditions for the reflection of the sun's rays, generating dynamic and kaleidoscopic apparatuses that alter the luminosity of the entire surrounding space, at the same time that they return sunlight to unusual points. The whole project is developed in a logic of dynamic configurations that systematically outline the possibilities of right angles, defining designs that generate coziness and, above all, aesthetic novelty. In some perspectives, especially when the built complex is seen from the Ria de Bilbao, the volume refers to the surfaces of the hulls of ships, as if it were a river port.

In the context of the creation process of the Guggenheim Museum in Bilbao, the possibility that Pablo Picasso's most famous work, Guernica, would at least be part of the collection offered during its inauguration. \(^7\) Given the symbolic value of the painting for the region, it has been claimed by the Basque Government, so that in addition to the mediatic and strategic value that it would have its presentation, namely by increasing the ticket office, it would also probably be the beginning of a no return trip afterwards to Madrid.

Returning to the project, it is a building that curls the bank, as if it corresponded to a snake that solemnly slides the bank of the Bilbao estuary. Its implementation questions the most classic canons that articulate structure, shape and function. In this case, none of these aspects accompany the obvious and, perhaps because of this, the result is as amazing as mesmerizing. It is a building with a very peculiar aspect, assuming both a celebratory and a cult character, since this work corresponds to a narcissistic act of architecture. The author, in multiple aspects, deliberately distances himself from both the functional program and the formal relationship with the place. The architect intends to point out the difference, to make visible the ballast of his ability to invent and to work the form in order to obtain something that is beyond the building and resembles an object – mainly an object that stands out for its strong presence and yearns to be a credible rival to the art it will show and which was at the base of its genesis.


\(^7\) The painting, exhibited at the Paris exhibition in 1937, and currently at the Reina Sofia Arts Center in Madrid, is a symbol of freedom as it has as its theme the bombing and ensuing massacre in the Basque city of Guernica by German fighters in support to dictator Francisco Franco.
A Corporate Group joined by a steel will.
There is no doubt that the museum is the great work that served as an anchor for the dynamization of the city of Bilbao, as a global strategy a set of public works was developed, developed by famous architects, helping to create new points of interest and, inevitably strengthening urban development poles. Thus, the Bilbao Metro designed by Norman Foster (opened in 1995), the Pedestrian Bridge of Campo de Volantín by Santiago Calatrava (opened in 1997), Bilbao Airport also by Santiago Calatrava (opened in 2000) or the Palace Euskalduna de Congresos e de Música by Federico Soriano and Doñoro Palacios (open in 1999) become relevant interventions that try to place the city and the region in the itinerary of mediatic architectures and become places referred to as striking points with work of the architectural star system. As a complement, it should be noted that the museum was built between October 1993 and October 1997, which makes it possible to verify a global and concerted strategy of urban development through the building for public use and the qualification of the network of transport.

If there were doubts about the opportunity to implement a museum project involving the Solomon Guggenheim foundation in the city of Bilbao, the truth is that, since its inauguration on October 18, 1997, this space has become one of the contemporary places most sought after in Spain.

The Guggenheim Museum is a masterpiece of architecture that has the particularity that in a first impression it generates some discomfort or annoyance and then, after careful observation, it becomes a building as appealing as it is mesmerizing. In that sense, it reminds us a little of the famous phrase of Fernando Pessoa, who, intending to advertise Coca-Cola, wrote that “primeiro entranha-se, depois entra-ha-se”.

Perhaps because of this, and playing on duality, it has been said that the Guggenheim constitutes an improbable battery that illuminates an entire city, occupying a place and resembling both a garment with haute couture, perfectly adjusted to the place where it is implanted as paradoxically in other cases looking like an extraterrestrial construction that an alien civilization left in that part of the land. This work by Gehry, perhaps one of the most important museums built in the last quarter of the twentieth century, is a remarkable testimony to the way in which architecture can at times be freed from the weight of history, looking without any worries and without complexes directly into the future. Interestingly, the Guggenheim Museum in Bilbao was chosen to give the Pritzker prize to the Norwegian Sverre Fehn on May 31, 1997, even before its inauguration or completion (a distinction that Gehry had obtained in 1989). This symbolic gesture was certainly a pretext for recognizing the architectural value of that project, taking advantage of the honoree to classify the work as an instant of freedom – but also of risk –, since throughout the design process, the brilliant idea of his initial sketches was always preserved.

It is a value that, inevitably, has been measured more from the architecture of museum spaces than from the base of its collections.

Due to its shape, due to the eccentricity, the nature of the intervention developed by Gehry, totally subalternates the exhibition material, intentionally acquiring the main role of architecture.

We know that in most cases, the particularity of one or more of the works on display is the engine for the success of a museum; however, in Bilbao, the works shown there are practically unknown, because what truly moves the crowds is the opportunity to visit a unique work of contemporary architecture, a construction that is a technological feature of a time and explores in many of its limits the potential opened by the combination of genius, information technology and the intensive use of steel solutions.

On these works, see for example: Mosaz, Javier, “Callejo metropolitana, Bilbao, economic imperatives and urban regeneration”, Arquitectura Viva n° 55, pp. 28-31.

A slogan that had the opposite effect to what was intended and motivated the seizure of the product, leading the Director of Health of Lisbon, in 1929, to have it thrown into the sea, and, consequently, to be banned in Portuguese territory (Quadros, António, “Introduction” in Obra em Prata by Fernando Pessoa Pages of political thought 1895-1935, Edipes Europa-América, Men Martins, 1986, p. 17).

Forester, Kurt W., Frank O. Gehry, Guggenheim Bilbao Musea, p. 11.

Figure 12. Aerial view


Esteban, Italo, El efecto Guggenheim. Del espacio basura al ornamento, Editorial Anagrama, Barcelona, 2007, p. 69,