

# Compare the 'Guggenheim,' Bilbao by Frank O. Gehry and the 'CaixaForum,' Madrid by Herzog & de Meuron

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f. Gehry

Oct./91 Bilbao



# Acknowledgment

I would like express my gratitude to Miho Nakagawa, History & Theory Tutor for her invaluable feedback and support throughout the process of completing this essay. I would like to thank Claudia Palma and the rest of the History & Theory Departments for their encouragement.

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# Introduction

This essay will compare how 'Guggenheim,' Bilbao and 'CaixaForum,' Madrid demonstrate the transformative power that architecture has on the environment, economy, and society. Frank Gehry said, "there is a social underlay in everything I do." (Gehry, Peyton-Jones and Hans Ulrich Obrist, 2008, p.54) Gehry's statement is supported by Robert Rauschenberg who stated that Gehry's instinctive reaction to the economical, environmental, and social requirements is as extraordinary as his sense of structure. (Gehry et al., 1999, p.25) This suggests that Gehry's abstract and deconstructive style is instinctive, without any limitations on a reinforced style. An instinctive design can significantly impact a structure beyond its intended

purpose, highlighting its potential for greater impact. Contextually, both Bilbao and Madrid were industrial areas where steel, iron and shipbuilding used to be manufactured. However, in the 1980s these industries started to diminish subsequently, decreasing the country's economy as well as polluting the environment, and making the areas inaccessible to society, especially foreign visitors. (Morris. 2017) Although the 'Guggenheim' and the 'CaixaForum' have different forms, they have the same objective, which is to recreate the entire place from industrial base to tourism base. (Newhouse, 1998, p.246)

First, the essay will examine the history of museum architecture, and how both 'Guggenheim' and 'CaixaForum' challenge the conventions of museum

architecture. Moreover, the essay will evaluate how Gehry and Herzog & de Meuron construct their form to express a sense of movement. Additionally, the essay will compare how Gehry and Herzog & de Meuron represent the industrial history of Bilbao and Madrid through their architectural forms. Finally, the essay will explore the lessons and inspiration that one can gain by observing these architectures. Both Gehry and Herzog & de Meuron highlight the power of architecture to reflect the history of the site while still creating innovative, influential architecture that challenges the imagination of the observer.



# The History Of Museum Architecture

In the mid-20th century, art museums in Europe and the United States were mostly designed in variations of the neo-classical style. Large and small cultural institutions ordered grand stone forms, renowned by a triangular shaped space above a doorway fronts, long row of columns supporting a roof, and rotundas. Axial and formal, exhibition galleries were traditionally arranged in rows, with simple decorative treatments that complement the artworks. Neoclassical architectures are portrayed by the use of grand scale volumes, simple geometric structures, extraordinary columns, Doric Greek, or Roman detailing and domed or flat roofs, according to style. (Hohenadel, 2022)



Figure 1. Neo-classical style museum architecture example

In the book called *Reshaping Museum Space*, Macleod discussed that the desire of the architect to create an innovative, and expressive architecture does not work in harmony with the function of the museum. (Macleod, 2005) This suggests that museum architecture has to be designed with the philosophy

of form must follow function. (Batty, 2022) The idea that the museum must be constructed for the art that it displays, white walls are ideal as they make the art to be the focal point of the viewer. Furthermore, the perception that museum architecture can be formed as a result of an apparent social requirement,



placed in the specifics of time, space and site. (Macleod, 2005) This statement demonstrates that a museum architecture can be constructed for the purpose of transforming the environment, economy, and society as well as being a home to many collections, and artworks.

Both the 'Guggenheim', Bilbao and the 'CaixaForum', Madrid demonstrate the fact that museum architectures are constructed for the economy of the city as well as for the art. The 'Guggenheim' is a shining and crucial part of the city's fabric, attracting almost 25 million visitors,

bringing an estimated €6.5bn (£5.6bn) to the Basque country. (Jones, 2022) This is evident, that museum architecture can be a force for a positive change that will have a lasting impact for generations. This argument counters the disagreement of some people who thought the proposed money to build

the 'Guggenheim' will be more practical to be given to a struggling business to get them going for another month or year, challenged by others who believed that the money should go to support health-care. (Jones, 2022) This indicates that most people did not consider museum architecture as a practical solution for economic crisis. However, the Basque government stood by the plan to build a new museum, this conveys their strong desire to cure the city from the scar of industrialisation, the only way to do that is to change the source of the city's economy. (Jones, 2022) As the 'Guggenheim' and the 'CaixaForum' proven, tourism is a long-term economic strategy, and the timeless nature of the museums' structure supports the museums to generate and even increase the city's economy for generations. If the money has gone to support failing business for a month or year, then there will be no econo

my after that, as it could have been a temporary fix. In contrary, the museums provide a permanent economic improvement as they attract visitors from the globe, with the permanent, and abstract arts in the 'Guggenheim', the temporary displays in 'CaixaForum' where displays change every time a visitor visits, and the actual museums form, which are by themselves a work of art, that evokes a range of different emotions in the viewer. Moreover, both museums create more jobs for the community as well as helping clean and modernise the environment.

Both Gehry and Herzog & de Meuron conformed to the ideology that a museum architecture should function for the social, financial, and environmental requirements. According to the book *Reshaping Museum Space* people want "glamour, excitement, spectacle and pizzazz" (Macleod,

2005). This suggests that although both the 'Guggenheim' and the 'CaixaForum' museum architecture defied the neoclassical principles of museum structure, they conformed to humanity's need of aesthetics, and innovation. Instead of mirroring the historical museum structure, both Gehry and Herzog & de Meuron created museum architecture, which can act as a representation, and introduction to the collections within the galleries. Whereas, the 'Guggenheim' has some of the sculptures outside the museum, such as the spider sculpture called the Maman, the Puppy and Tall Tree & The Eye. The placing of some sculptures outside the 'Guggenheim' makes the architecture seem like another sculpture that looks like a ship. This signifies that architecture is part of the art as the art is part of the architecture, they do not dominate each other, in fact they work in harmony with each other.

Gehry defies the conventional rectangular museum design in favor of a more flowing organic structure (Team, 2023) This suggests that the structure of the 'Guggenheim' is complex as well as functional, because the architecture mirrors the form of the art as depicted in (Figure. 4). This means that museum architecture functions for art just as much as the art functions for the museum architecture. There is no one without the other, the idea that museum architecture does not need to be boring to make the art interesting instead both should be fascinating in order to attract more people.

Similarly, Herzog & de Meuron created two contrasting spaces, one very bright and one dark. As depicted in (Figure. 5), the contrasting portrayal of the 'CaixaForum' structure represents the theme of past and future, while still being functional for

the arts. The brighter space displays darker artworks, while the dim lighted area exhibits bright, and colorful artworks. (See Figure 11&13.) This conveys that the space compliments the art as well as expressing the importance of preserving and learning from history in order to transform the future. Both Gehry's the 'Guggenheim' and Herzog & de Meuron's the 'CaixaForum' museum architecture demonstrate the importance of incorporating history into the design in order to turn the architecture into a historical icon, which will be preserved for generations. Human lives are futile, but historical architecture can go on for centuries, reflecting the architects' imagination and innovative thinking that will inspire, influence, and educate the new generations. This further emphasises the power of architecture to surpass human lives, expectations, and time.

# The Expressive Power of Art and Architecture

Gehry was inspired by Bilbao's industrial history and nature when designing the 'Guggenheim' Museum. He was interested in the concept of movement; he expressed movement through his free-flowing curve configuration. He represented the industrial history of Bilbao through his use of material and the form of his architecture. He used steel paneling to represent the steel industry that used to be in Bilbao and the ship like forms of his architecture exterior represents the shipbuilding industries. (Newhouse, 1998, p.245) Even though Gehry did not preserve an existing industrial façade like the 'CaixaForum',

he used the products of that industry in order to preserve history, while completely transforming the site. Figure 2. demonstrates the concept of movement as it gives the impression as if it is moving toward the city. It resembles the movement of water reflecting the colour of the sunset, and the dark tone of the building as it folds, and twists like a sea - wave affected by the wind. It resembles a hurricane moving toward that ally cleaning and purifying the industrial wasteland (see Figure 3.) in its path.

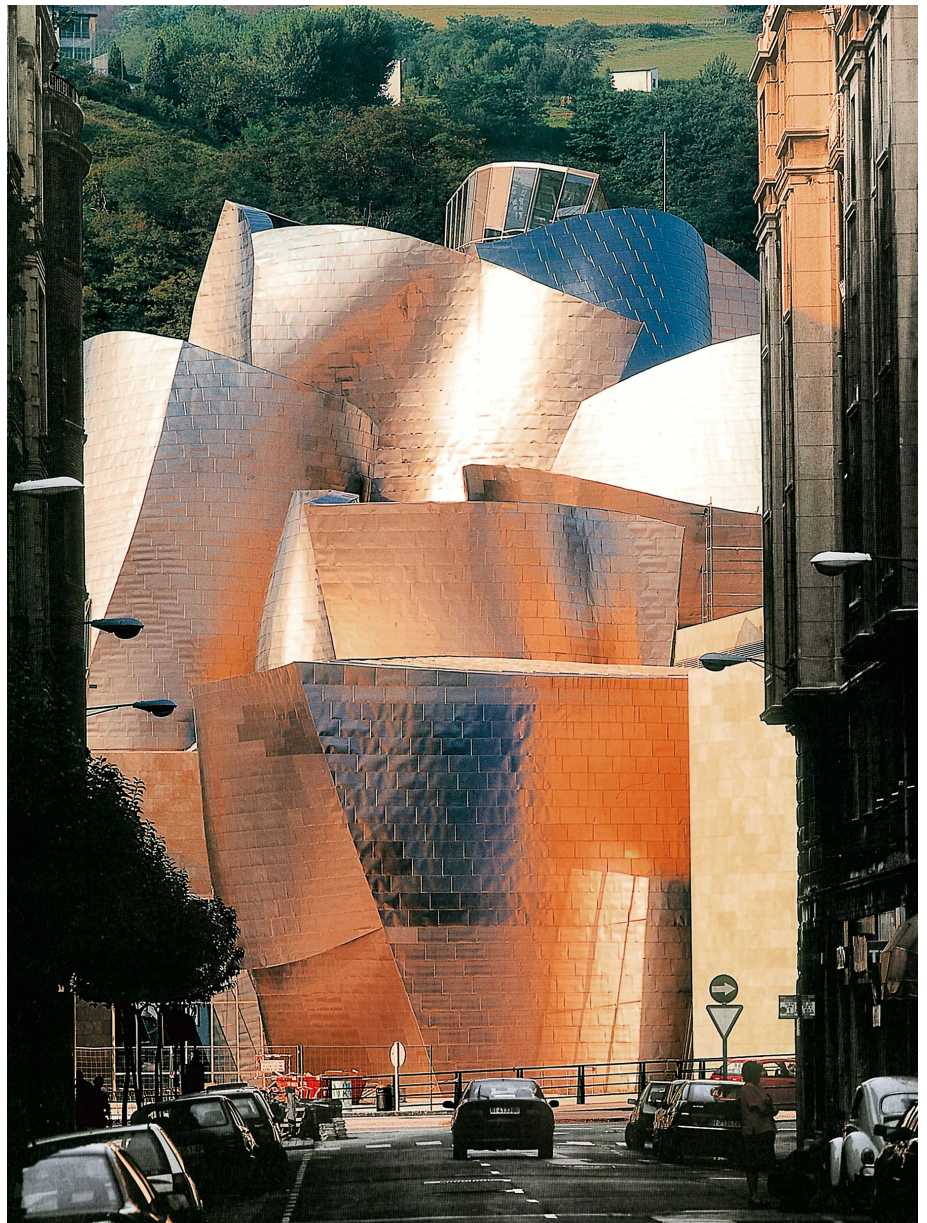


Figure 2. View from Iparragirre Kalea toward the entrance



Figure 3. Bilboa's docks in the 1970s, when many natives recall a polluted city and estuary.

The Basques' initial idea was to rehabilitate an existing structure like the 'CaixaForum', but the former Guggenheim director, Thomas Krens convinced them to choose a new site by the river front, and the building to be completely new rather than an addition to an existing structure. (Newhouse, 1998, p.247)

The purpose of the museum construction is to transform the industrial-based economy into tourism based in the hope that it will beautify the environment and grow their economy. Movement is not stationary, it is something that changes, Gehry showed this by making every side of the structure look different to give that sense of change. The idea of movement (Griffiths, 2022) highlights the city's desire to move away from dying industrialisation and shape an innovative future. Figure 4. indicates that the form of Richard Serra's sculpture demonstrates a sense of movement as well as the

curvilinear architecture. Furthermore, the material of the sculpture is rusted steel, (Hughes, 2005) which demonstrates that the arts also represent the industrial history of the site. The form of architecture mirrors the form of the art, and the art expresses a sense of movement that Gehry wants to show. (Griffiths, 2022)

However, the 'CaixaForum' represents movement through time by creating two distinct spaces that symbolise the past and the present. Herzog & de Meuron presented the past by the space below ground, and the present by the space floating above ground. Herzog & de Meuron used the old brick shell to represent the past industrialisation. Even though the CaixaForum's form does not resemble the form of a ship like Gehry's does, it gives the impression that it is floating, (see Figure 5) this represents

a ship as ship floats. The 'CaixaForum' Madrid demonstrates a way to incorporate the past into future development. This building represents that the new can be born out of the past.



Figure 4. the interior gallery space containing Richard Serra's sculpture and the exterior form of the Guggenheim







Figure 5. The exterior form of the CaixaForum Museum displaying the attached old and new structure that seemed disconnected from the ground.



'CaixaForum' represents that history can shape the future, the idea that one has to learn from history of the past in order to transform the future. In contrast, the 'Guggenheim' Museum, Bilbao, Gehry constructed a new structure to transform the corrupted area due to industrialisation. However, Gehry represents the steel and shipbuilding industrial history of the site through the steel frame material (see Figure 7), and the form of the exterior that resembles a ship (see Figure 4) that is sailing. Both architects were tasked to construct a museum structure that will transform, and free the area from the corruption of industrialization (Newhouse, 1998, p.246) subsequently, increase tourism, and long-term economic advancement to the formally inaccessible areas. The architects create a feeling of movement, Gehry in a visible and Herzog & de Meuron in an invisible way but, both conveyed the expressive power of architecture.



Figure 6. The old power station before being used as a historical building in the new CaixaForum Museum of Madrid.





Figure 7. The Guggenheim Museum steel frame during construction before rapping the titanium on to it.



# The Power of Architectural Forms

The 'Guggenheim' Museum Bilbao is a curvilinear structure created using a thin titanium cladding rapped on a steel panel. Gehry's architecture resembles the form of a sailing ship which represents the shipbuilding industrial heritage of the site. (Griffiths, 2022) This portrays that architectural form has the power to symbolise both past and future. Furthermore, the exterior form looks like a fish with its head and tail cut off, and it looks like a flower from the top. (see Figure 8) This shows that his forms are inspired by nature as well as the ship and steel industry. The form gives the impression it is sailing away from the city, it is part of the river, it is part of the sea, and it is part of nature.



There is a spider sculpture by Louise Bourgeois guarding the front of the 'Guggenheim' Museum. Bourgeois personified the spider like her mother, the idea that spiders are weavers, they are creators, they are protectors and people are terrified of them. It symbolizes the uncertainty between

good and bad, strong, and weak, safe, and dangerous. . (Lesso, 2022) Louise Bourgeois said that,

**“The spider is a repairer.”**



Figure 8. The exterior form of the Guggenheim Bilbao, resembling the form of a sailing ship, a fish without its head and tail and toward the top it started to curve like a flower.

“If you bash into the web of a spider, she doesn’t get mad. She weaves and repairs it.” (Bourgeois,2010) This single sculptural form of art demonstrates the function of Gehry’s structure, which is to repair the degraded environment, declining economy, and society. The mayor, Juan Mari Aburto described the Bilbao

of his childhood experience saying, “Back then, it was a much greyer, dirtier city whose skies were polluted by the smoke from the steel factories and the shipyards in the center of the city,” (Jones, 2022) This demonstrates the power of architectural form and the power of art to express emotions and the

duality of life. Both the architecture that looks like a sculpture itself and the Spider sculptural art represent the relationship between nature and architecture, the manufactured and the natural.





Figure 9. The bronze, marble, and stainless-steel spider sculpture called the Maman by Bourgeois Louise 1999 exhibited by the Guggenheim's main entrance.



Likewise, the vertical garden on the wall next to the 'CaixaForum' (see Figure 12) developed by Patrick Blanc helps to balance the brick and metal industrial texture with nature. However, the gravity defying form, the 'CaixaForum' was built between 2001 and 2007, It is a building devoted to programs in art, music, theater, and literature, and is owned by Spain's largest savings bank: Caixa Bank. (Walker, 2020) Whereas the 'Guggenheim' was built between 1993 and 1997, and because of the mathematical intricacy of Gehry's design, Gehry decided to work with an innovative software primarily created for the aerospace industry, CATIA, to accurately interpret his idea to the structure and to help construction. ('Guggenheim' Museum Bilbao, 2019) In contrast to Gehry, Herzog & de Meuron have to preserve the existing power station as it was a historic significant. (Bloszies, 2012, p.106) This



Figure 10. A view inside the CaixaForum plaza

was a challenge as it is hard to construct a form that is innovative like Gehry's 'Guggenheim,' while still keeping the power station.

Despite the challenges Herzog & de Meuron used the problem and turned it into

a solution. They removed all the interior of the power station and only kept the exterior brick shell. Instead of leaving the brick shell on the ground and connecting the new structure on the top, the architect lifted the brick shell off the ground, removed the base and made it float. The space between the floating



form and the ground, there is a plaza that is enclosed, (see Figure 10) where people can hangout away from the sun or just pass through to get a break from the hot sun. (Herzog & De Meuron, n.d.)

This opening between the two times, the past and the present is not created just for the purpose of aesthetic

as it functions as a social space, therefore, contribute to community. The form evokes a different emotion in the viewers as they move through the spaces.



Figure 11. The white and bright gallery space above ground



This exhibition space is on the floor above ground, it is very white and bright which makes the art stand out. (Figure 11) This space represents the future of purified Madrid from the destruction of industrialisation and the civil war. (Simkin, 2014) The interior expresses a completely different emotion from the uncertain, mysterious, and heavy feelings the exterior evokes. The dominating effect of the exterior form with all its industrial materials: the rusting metal and the fading brick makes it look like an old building. (Figure 12 left)

The plaza entrance looks very dark, like entering into a dark cave. This creates dual emotion, the feelings of dread and curiosity.

However, once inside the plaza the perception of the glowing silver, and the path with the stair leading up a



Figure 12. The daring and bold exterior and the visual of the plaza.

bright space eliminated that feeling of foreboding. Only leaving curiosity, and the desire to know the visual inside this ship-like form that is about to take off to two different spaces. Once inside, the gallery spaces are bright and white, while the auditorium underground is dark, and has a brown

textured ceiling. The ceiling has lights that give the impression that the ceiling has small holes, which let natural light in, and the wood seating is connected to the floor. The curvilinear form belowground provides a calm, relaxed and cozy atmosphere from the bright



light aboveground. (Figure 13)

Both architects created distinction between their spaces, the space changes with the art. This supports the idea that the buildings themselves are arts, as

visitors look at arts throughout the gallery, they also observe the interior architecture changing as they move through the space. This highlights the power of architecture to be multifaceted as architecture can be both functional and imaginative.





Figure 13. the CaixaForum's interior of the underground auditorium and exhibition



# What Lessons Can We Learn from Both 'Guggenheim' Bilbao and 'CaixaForum', Madrid

“You can look  
anywhere  
and find  
inspiration.”  
(Gehry, n.d.)

Looking at this sketch, it gives a deconstructive style as the lines look like they are drawn randomly. Deconstructivism is an architectural style influenced by deconstruction that inspires radical freedom of structure, complexity in a building rather than a firm devotion to functional ideology, and conventional

design elements like right angles. (Merriam Webster. com, n.d.) Although this is a conceptual sketch of Gehry's idea, it shows the feelings he wants his structure to evoke, it symbolises movement and change, the evolution of ideas. As displayed in (Figure 14) the sketch emphasises the fact that one has to experiment multiple times to get the desired result. Although the sketch looks deconstructive, it gives a constructive lesson that can benefit anyone in any field. The sketch can be an inspiration as it teaches humanity not to give up at first try. The artist whose spider sculpture stands by the entrance of the 'Guggenheim', she believed that one has to attempt, fail, and undertake again. (Tate, 2016) The artist Louise Bourgeois's statement demonstrates the value of patience and experimentation. The architectural concept

sketch emphasis the power of architecture, as it demonstrates that architecture has the power to inspire and have an impact on its viewer, even in a conceptual stage of its development.

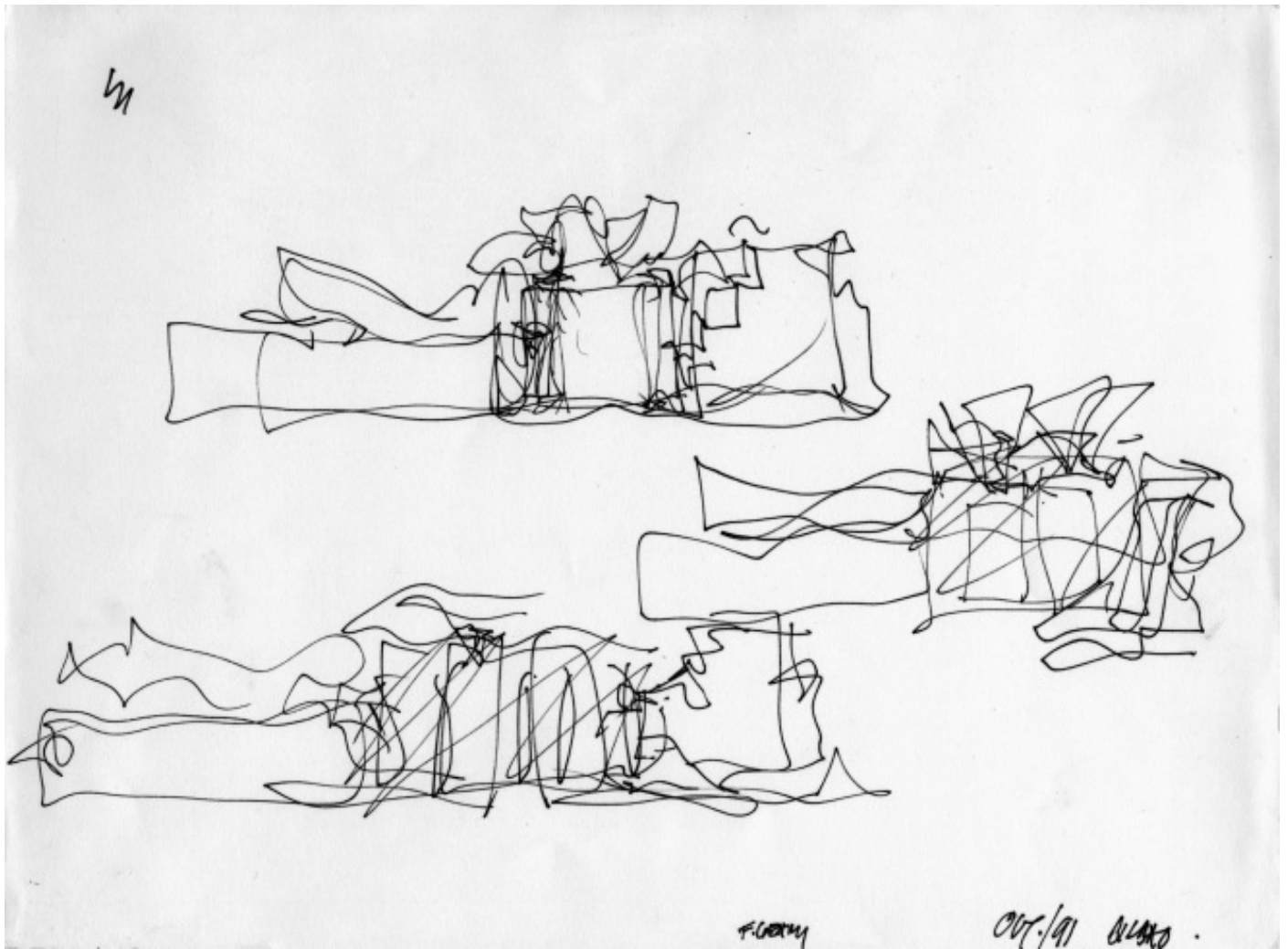


Figure 14. The Guggenheim Museum sketch

Similarly, the section drawing of the 'CaixaForum', Madrid displayed in Figure 15 & 16. Exposes the invisible, (the views that are not seen from the exterior pictures of the CaixaForum). The section represents the fact that the past cannot be seen in the present nor in the future. Furthermore, the section exposes the expression of movement that was invisible when looking at the picture of the 'CaixaForum' or when standing in front of the building. The section demonstrates that the 'CaixaForum' museum structure expresses a sense of movement in the same way Gehry expressed the movement, and form of a ship through his architecture the 'Guggenheim'. The section drawing teaches the fact that a drawing which represents art has the power to show what a camera and eye cannot see. A drawing has the power to show hidden details of a structure and

allows the designer to communicate their vision as a whole. The foyer and auditorium symbolise the past, which is invisible whereas, the covered plaza, lobby, the two galleries, administration and the restaurants represent the present, which is visible, while foreshadowing the future through the innovative gravity defying appearance of the architecture. Pushing the supporting columns behind the façade gave the 'CaixaForum', Madrid architecture the expression of floating. (Walker, 2020) The staircase in the middle is the one common connection between the two distinct spaces. The staircase is a pathway which links the past and the present. Therefore, the staircase is a symbolic representation of history, as the only connection to the past is historical records, objects, and structures like the brick shell. Alternatively, it could also represent the fact

that the present is an extension of the past.

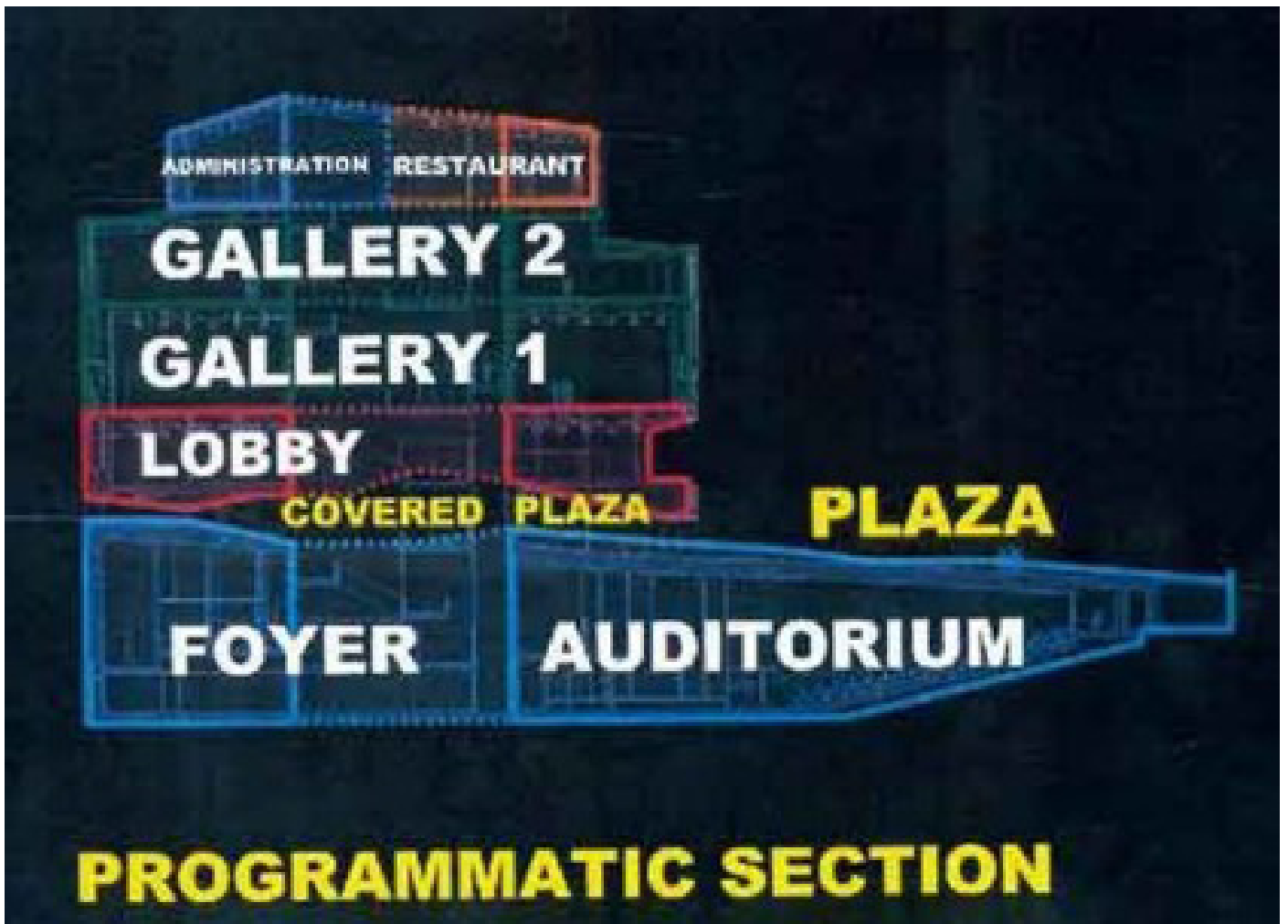


Figure 15. The CaixaForum Museum programmatic section drawings

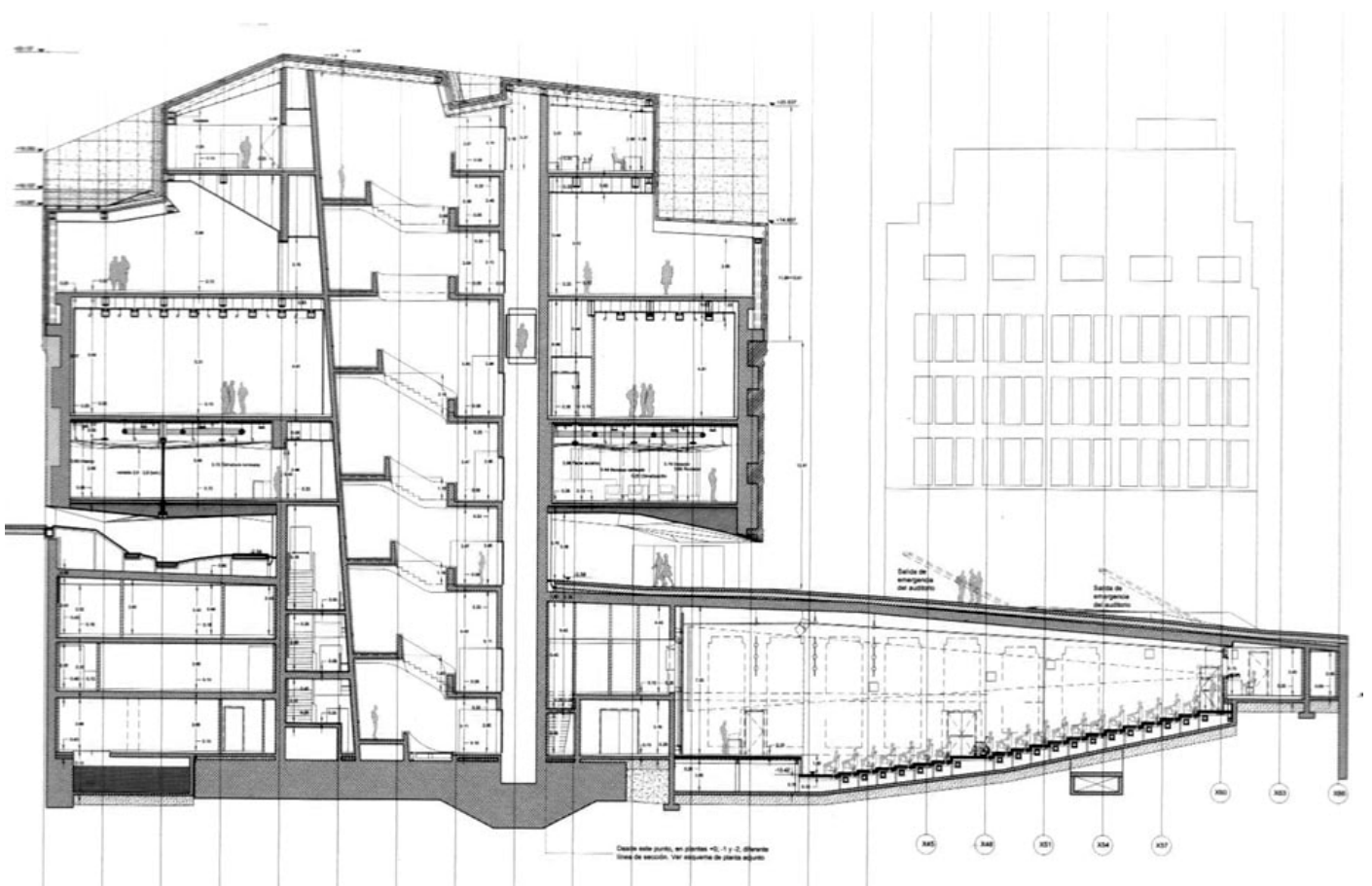
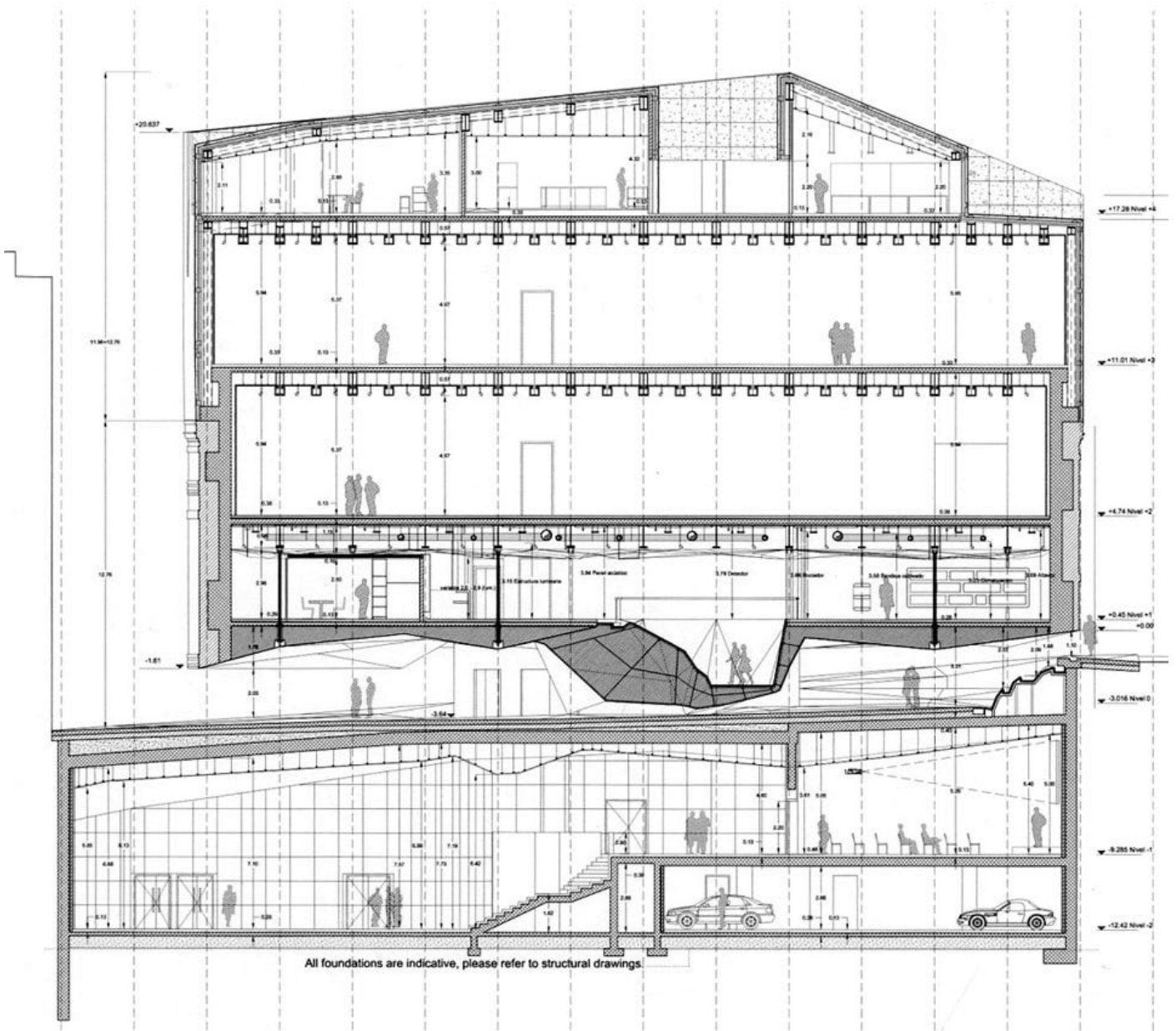


Figure 16. The CaixaForum Museum technical section drawings





In contrast to 'CaixaForum', the technical section drawing of the Guggenheim shows a layer of curves forming the architecture.

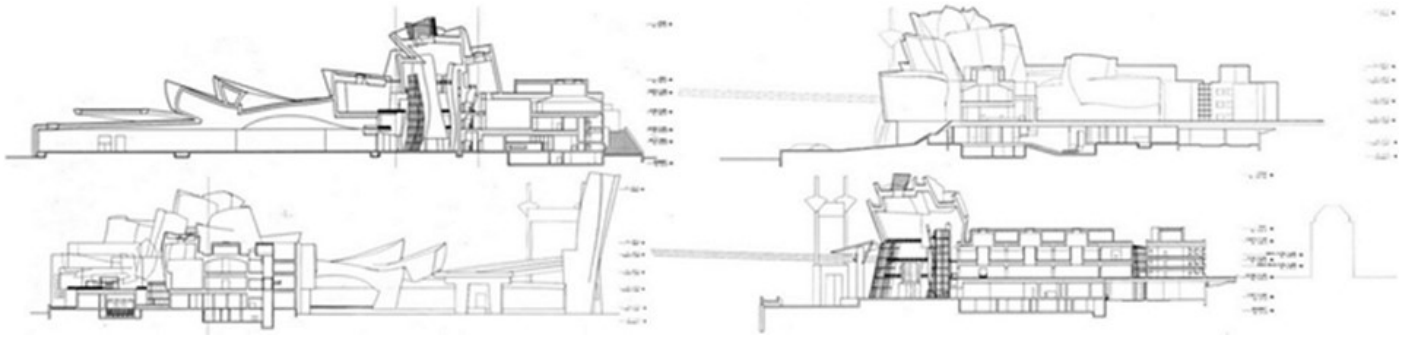


Figure 17. The Guggenheim Museum section drawings

The structure changes appearance when looking at it from a different angle like the 'CaixaForum' when the supporting columns are visible on the back side and invisible on the front. However, the 'Guggenheim' has a change in materials as one of the sides is made with limestone. (Guggenheim Museum Bilbao, 2019) Unlike the straight horizontal and vertical lines of the 'CaixaForum', the curve lines of the 'Guggenheim', Bilbao symbolises movement of water and positive emotion. The lack of straight lines

in the sectional drawings of the 'Guggenheim' suggests the fact that there is no one straight path in life. It mirrors the unpredictable characteristics of life and nature. Moreover, it represents the evolution of human knowledge and the freedom to explore new creative, and imaginative concepts.

# Conclusion

Overall, the 'Guggenheim' and 'CaixaForum' are two iconic museums that demonstrate the transformative power of museum architecture on the environment, economy, and society. They are both inspired by history and nature, with the 'Guggenheim' resembling a sailing ship symbolising past and the 'CaixaForum' resembling a ship. Both buildings emphasise the importance of learning from history to transform the future, transforming industrialised areas into tourism centres and promoting economic advancement. Both buildings display the expressive power of architecture in transforming these spaces. Museum architecture can also be influenced by social requirements. Museums attract visitors with permanent and abstract arts

in Guggenheim, temporary displays in CaixaForum, and complex museum forms. Moreover, the museums create jobs, modernize the environment, and evoke emotions, contributing to permanent economic improvement. The 'Guggenheim' and 'CaixaForum' museums defied neoclassical principles, embracing aesthetics and innovation, rather than mirroring historical structures. Furthermore, both museum architecture's conceptual sketch emphasizes the importance of experimentation and patience in achieving desired results. It serves as an inspiration, demonstrating the value of failure and retrying. (Tate, 2016) The artist, Louise Bourgeois, believes in the power of failure and experimentation. The sketch also highlights the impact of architecture on its viewers. Both architectures' bold design, inspires others to

move away from restraining conventions to design an innovative architecture that exceeds its time.



# List of Illustrations

Figure 1. Hohenadel Kristin (2022), What Is Neoclassical Architecture? Available at: <https://www.thespruce.com/neoclassical-architecture-4802081> Accessed on (22/11/2023)

Figure 2. Fernández-Galiano Luis (2021), Architecture and life. Arquitectura Viva. Available at: <https://arquitecturaviva.com/articles/architecture-and-life> Accessed on (22/11/2023)

Figure 3. Sam Jones (2022), Guggenheim effect: how the museum helped transform Bilbao, The Guardian, Available at: <https://www.theguardian.com/world/2022/oct/31/guggenheim-effect-how-the-museum-helped-transform-bilbao> Accessed on (22/12/2023)

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Figure 5. Author Guest (2014), CaixaForum Madrid. Much more than a vertical garden, Available at: <https://www.cosasdearquitectos.com/2014/06/caixaforum-madrid-herzo-de-meuron-jardin-vertical/> Accessed on (26/12/2023)

Figure 6. Author Guest (2014), CaixaForum

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Figure 7. Librero Javier García (2017), 20 years after the Guggenheim Bilbao, ArchDaily Perú, Available at: <https://www.archdaily.pe/pe/881648/a-20-anos-del-guggenheim-bilbao> Accessed on (26/12/2023)

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Figure 10. Mao David, (2018), CaixaForum Madrid, Available at: [https://medium.com/@david.mao\\_33188/caixaforum-madrid-b92ac0cc5f04](https://medium.com/@david.mao_33188/caixaforum-madrid-b92ac0cc5f04) Accessed on (26/12/2023)

Figure 11. Herzog & De Meuron, (n.d.). 201 CaixaForum Madrid, Available at: <https://www.herzogdemeuron.com/projects/201-caixaforum-madrid/> Accessed on (26/12/2023)

Figure 12. Herzog & de Meuron, (n.d.). 201 CaixaForum Madrid, Available at: <https://www.herzogdemeuron.com/projects/201-caixaforum-madrid/> Accessed on (26/12/2023)

Figure 13. Nast, C. (n.d.). CaixaForum Madrid, Madrid, Spain - Museum Review | Condé Nast Traveler. Condé Nast Traveler. Available at: <https://www.cntraveler.com/activities/caixaforum-madrid> Accessed on (27/12/2023)

Figure 14. Team, A (2023), The Guggenheim Museum Bilbao by Frank Gehry: A Symphony of Shapes. ArchEyes. Available at: <https://archeyes.com/the-guggenheim-museum-bilbao-by-frank-gehry-a-symphony-of-shapes/> Accessed on (27/12/2023)

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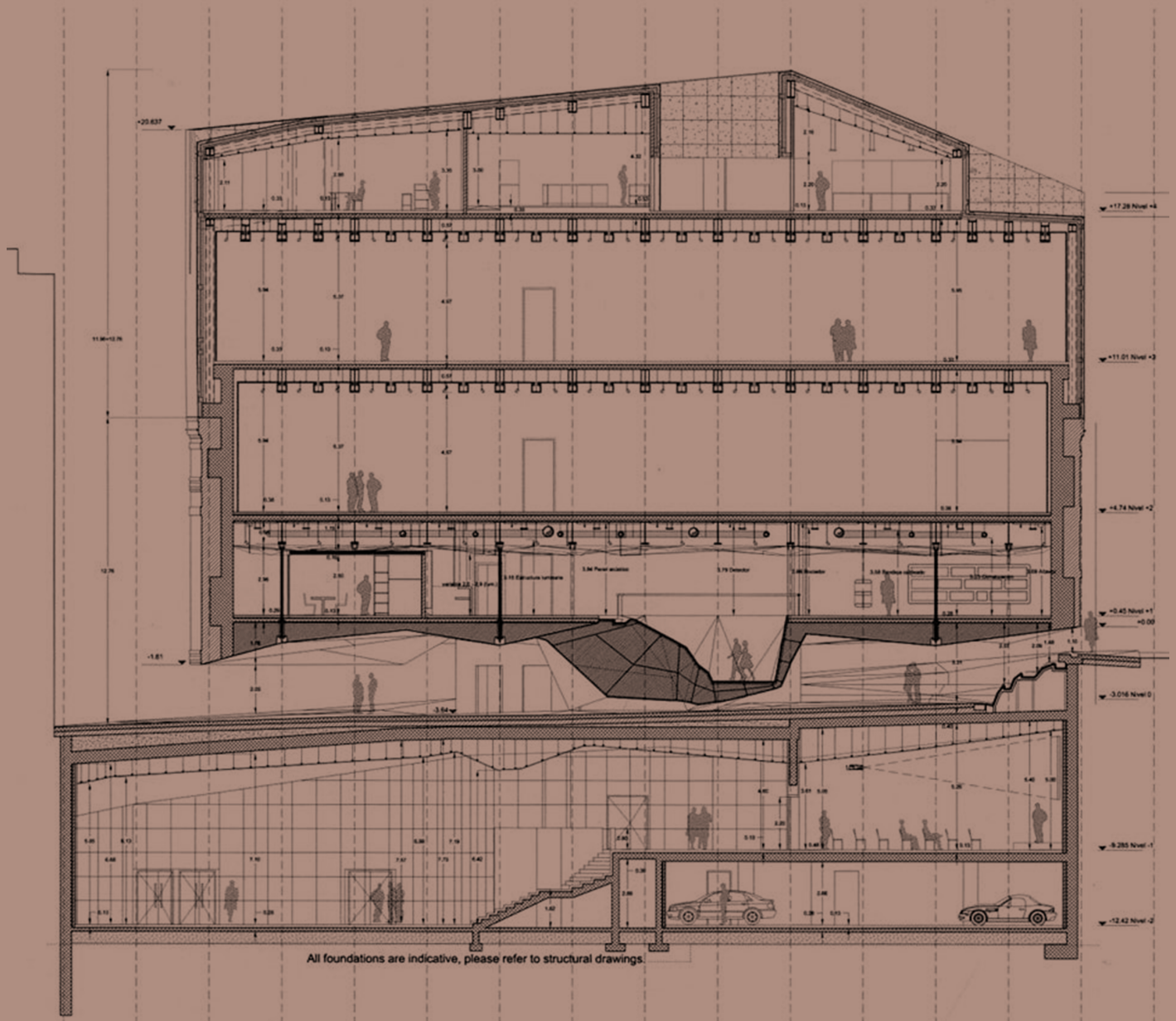
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