ENGLISH

INFORMATION BOOKLETS

Basílica Sagrada Família

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Architecture of the Sagrada Família

Gaudí changed and improved on classic styles, particularly Gothic, to create a new architecture.



Although still in the early stages, in this pinnacle Gaudí shows hints of the architecture he would develop in the future.

Basílica Sagrada Família

Sagrada Família, by Gaudí

Many architects have worked at the Sagrada Família, but it is undoubtedly Gaudí's work, as his conceptual and formal mark on the building is unquestionable.

Gaudí devoted 43 years of his life to the Sagrada Família, so nearly his whole professional career is reflected there. And although he could only head up part of the construction, he left plans for the rest in drawings and models, as well as clear instructions regarding the path to follow.
He designed the Temple based on the tradition of Byzantine and Gothic churches and cathedrals, and the rigour of classical Greek architecture can also be seen in the proportions of the columns and hierarchy of measurements. Gaudí changed and improved on these styles to create a **new architecture**. A specific application of geometry allowed him to design never-before-seen shapes that, given their unique nature, make this Temple one-of-a-kind. The Sagrada Família also shows the influence of nature, which inspired Gaudí to apply balanced, logical structures and continuous surfaces, seeking beauty and the best liturgical function for the various celebrations that would be held at the Temple.

Throughout the building, there is a clear relationship between architectural form and symbolism. As architect Isidre Puig Boada said, Gaudí "knows the emotional value of art, and uses it for the specific purpose of religious education." The meaning lies not only in the images and inscriptions, but is also conveyed through the shape and expressiveness of the architecture.

Overhead view of the great hyperboloid covering the apse.

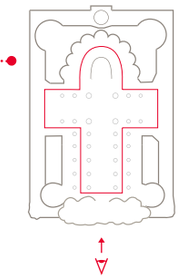


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General view

The profile of the Sagrada Família is not only the result of architectural criteria. It also applies symbolic criteria, because everything in it has transcendental meaning and symbolism.

The floor plan of the Basilica is in the shape of a Latin cross, as Francisco de Paula del Villar y Lozano established in the original plans and was common in Gothic architecture. It has three monumental façades: the main façade at the foot of the cross, and the other two, Nativity and Passion, on the arms or transepts of the cross. On the top of the cross is the apse, with the same floor plan as the crypt, and seven apse chapels. Gaudí designed a total of eighteen towers, with the shortest twelve on the façades (the bell towers, which are each roughly 100 meters tall and represent the twelve apostles) and the six tallest in the centre, in a pyramidal structure expressing the hierarchy of their symbolism. Of these, the tallest is over the crossing, representing Jesus Christ and standing 172.5 metres tall (23 times 7.5 metres, the base module for the dimensions of the naves and towers). It is surrounded by four thinner towers that are 135 metres tall (18 times 7.5 metres) representing the four Evangelists, which were completed in 2022 and 2023. Another 138-metre tower, completed in 2021, covers the apse and represents the Virgin Mary. Together, the eighteen towers make up an extraordinary work of art, changing with each point of view and giving the sensation of elevation and sheltering the central tower of Jesus Christ.



Each of the three great façades will have a different monumental narthex. The structures will be topped with four domes forty metres off the ground, one on each corner. To the north, on either side of the apse, there are two sacristies and to the south, on either side of the main façade, the Baptistery and the Chapel of Penitence and the Sacrament.
The three façades and these four constructions will be joined by a wide covered walkway with a double façade that Gaudí called the cloister. This section will be used in a similar way to traditional cloisters (space for processions, to walk and mediate), as well as insulating the nave from the street noise and allowing access between buildings without going through the naves.

The towers of the Sagrada Família are laid out in a pyramidal structure.



Structure and shapes

One of Gaudí's contributions was his drive to get rid of elements that were characteristic of traditional architecture, and he replaced them with solutions that would make his work brighter, taller and thinner.

The architecture of the Sagrada Família is based on balanced structures, which quickly and effectively transfer loads to the foundations. So, on one side, on the Nativity façade, the towers and many support elements for the three portals are catenary or parabolic arches, which are very stable and highly resistant to the wind. They also accentuate the sensation of verticality and of reaching up towards the heavens. And, on the other, on the portal on the Passion façade, the two levels of the narthex have six and eighteen columns, respectively, that lean towards the centre and interior, helping highlight the dramatic nature of this narthex. Gaudí defended the theory that a properly inclined column is more stable than a vertical one. So, in the naves he designed a structure of inclined columns that, based on the double twist column, create a space reminiscent of a forest and that, given its characteristics, encourages introspection and prayer.

Geometric shapes

In the final phase of his career, Gaudí opted to design and build with a combination of geometric shapes. He did so on the pinnacles for the Nativity façade and in the project for the vaults inside the Temple and other parts, using and combining curved ruled surfaces. This way, he created a life-like overall character and expression, in line with his architecture.



The two levels of the narthex on the Passion façade.



The geometric shapes Gaudí used (sphere, octahedron, cube and triangular pyramid, etc.) can be found on the tips of the pinnacles on the bell towers.

Light



Sunlight penetrates harmoniously throughout the interior of the Temple.

Gaudí used light to bring out the splendour and expressiveness of his architecture. Rays of light make the pinnacles that top the towers and windows shine. The sun in the east illuminates the portals on the Nativity façade and accentuates the joy of life that is the birth of Jesus. On the Passion façade, the contrasting light and shadows from the setting sun makes it feel even coarser and harsher. While on the Glory façade, the midday sun will make the sixteen lanterns on the monumental narthex shine and illuminate the main entrance to the Basilica. And the purpose of this light shining harmoniously into the interior of the Temple is none other than to convey the presence of God.



Light not only shines into the Sagrada Família through windows on the walls, but also through skylights in the vaults.

The skylights on the vaults of the Basilica are hyperboloids.

Colour

A firm believer in the importance of colour, which is ever-present in nature, Gaudí made his Temple very colourful. And he did so beyond just the stained-glass windows, which he designed in a wholly unconventional manner.



Gaudí said that colour is an expression of life and that's why he wanted it to be a big part of the Sagrada Família.
We find it, among other places, on the cypress on the Nativity façade, on the pinnacles and other tips of the towers at the Temple, in the episcopal attributes, the fruit, the shafts of wheat and the grapes (which represent the Eucharistic symbols of bread and wine), covered in *trencadís* mosaic made of Venetian glass and ceramics glazed in a variety of colours, and bricks and stones, etc.
Inside, in addition to the colours from the building materials, such as the different types of stone used and the tiles on the vaults, there are also many elements with symbolic colours, like the stained-glass windows and the inscriptions on the light points at the knots in each column in the central nave and crossing, and the diffusers in the vaults.

Inner nave, with columns in different materials and colours: granite and prefabricated concrete (light grey), basalt (dark grey) and porphyry (reddish stone).

Inside the Temple, colour is found not only in the stained-glass windows but also in the building materials themselves.

The construction schedule

Aware that he wouldn't be able to finish the Temple, Gaudí decided to build it in parts, thinking that if he could leave one section completed it would be more difficult to abandon the project. So, after the crypt was finished and before work began on the apse façade, he tackled the Nativity façade.
His disciples carried on with this work method, raising the towers and lower narthex on the Passion façade between 1954 and 1977. Their successors continued in the same manner, focusing on the naves, which were covered in 2010.
Afterwards, the works carried on according to the same schedule: the western sacristy was completed in 2016, and served as the model for building the central towers. In 2021, the tower of the Virgin Mary was completed and its star lit up.
In 2022, two of the towers of the Evangelists were completed and the other two were finished in 2023, when there was a celebration for the complete grouping of the four figures of the tetramorph that top these towers.
Construction of the tower of Jesus Christ was completed in 2026, and construction of the Glory façade is the final phase of the project.

Building materials and techniques

One thing about the architecture of the Sagrada Família that isn't often highlighted is the use of building materials and techniques that are quite advanced for their time. Gaudí used reinforced concrete and his followers carried on in this line.

In general terms, the materials used to build the Sagrada Família are the same ones Gaudí proposed and that were used for the part of the Temple he headed up. The stone used for the bell towers on the Nativity and Passion façades is sandstone from Barcelona's Montjuïc mountain. Due to the very limited availability of this stone (the quarries have been closed for years and the only stone available comes from old buildings in Barcelona that are torn down), different types of stone have been used for the windows and part of the towers, such as granite and other sorts of sandstone. Reinforced concrete, which Gaudí also used on the pinnacles on the Nativity façade, was used to build the naves, following the architect's instructions. The vaults were also built with the Catalan vault technique (adapted to the shape of the hyperboloids and paraboloids), often used by Gaudí in his buildings and in Catalan architecture for centuries.

The materials used to build the Sagrada Família are the same ones Gaudí proposed. The difference is that today these materials are used with the resources now available thanks to modern building technology.



Gargoyle and windows in the cloister on the Nativity façade, in sandstone from Barcelona's Montjuïc mountain.



The support columns for the tower of Jesus Christ, as they pass through the lower part of the Crossing Room. They are exposed concrete.



Columns and capitals in white concrete in the Crossing Room. The columns were poured on site using polyester moulds, and the columns were prefabricated using polyester moulds on the Temple grounds and then lifted into place with a crane.



Choir vaults, built using prefabricated concrete pieces and concrete poured on site.



Vaults of the side nave, built with white exposed concrete and polyester and fibreglass formwork.

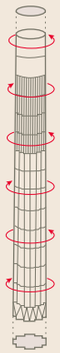
Technology for construction

The difference is that today these materials are used with the resources now available thanks to modern building technology. So, the stone is cut using computer mechanisation systems, and there are several different concrete formwork systems, ranging from metal or wood cut with the help of a computer to polyester and fibreglass or polystyrene, also moulded using a computer. Finally, it must be noted that today's auxiliary equipment (metal scaffolding, tall and powerful cranes, computer systems for laying out and marking, etc.) have become essential tools to tackle the construction and the assembly of large stone pieces, formwork and reinforcements in a precise, effective manner.

Glossary

Catenary arch Arch with the shape of a rope or chain suspended from both ends. On its own, it is the most stable type, meaning it doesn't need other support elements.

Double twist column Column with a polygon or star base that twists to the right and the left as it moves upwards, becoming a circle. This makes it more stable and gives it a more stylised, harmonious appearance overall.



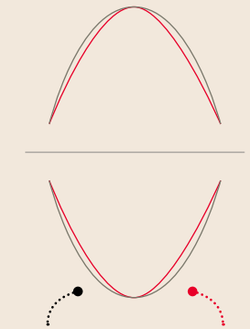
Formwork Mould to shape the wet concrete poured into it. It can be made of various materials: wood, metal, resin or other fibres.

Granite Very strong volcanic rock.

Laying out Drawing a plan (horizontal or vertical) of the general lines for the foundations or other part of a building before beginning construction.

Narthex Vestibule, portico, in front of the door of a church or temple.

Parabolic arch Arch with the shape of a parabola. Similar to the catenary arch.



Reinforced concrete Concrete with metal rods inside to help it stand up to tensile and bending stresses, which the concrete on its own would not be able to withstand.

Ruled curved surface Surface generated by a straight line moving on a plane or in space.

Sandstone Detrital sedimentary rock with more than 85% sand, held together by any sort of cement.

Vault Curved architectural structure that creates a roof and is made up of elements that hold each other up.

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