

Two modern churches, a dialogue about modern technology.

History and Theory - Architecture RIBA Part 1

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Figure 1 Inside Riola's Church (Photo by: Fabio Lima, Aalto Foundation) Calming minimalistic church.



Figure 2 Inside Basílica de La Sagrada Família (Photo by: Sagrada Família Foundation) Calming Detailed Church

Contents:

<i>Introduction.....</i>	<i>3</i>
<i>Construction</i>	<i>3</i>
<i>Materiality / Ornamentation (Light Study).....</i>	<i>6</i>
<i>Overlapping Themes.....</i>	<i>8</i>
<i>Conclusion</i>	<i>9</i>
<i>References.....</i>	<i>10</i>
<i>Figures / Illustration Reference List.....</i>	<i>12</i>

Introduction

This essay will explore different case studies and compare the different techniques and ways of designing, and how they have changed throughout different years. It will also understand the differentiality of materials and how they affect the outcome of these Architecture Projects.

I will look at Riola Parish Church and Basilica de La Sagrada Familia to compare and analyse the differences between materiality (concrete, glass, wood, steel), design and technologies used.

A variety of books, articles, drawings, and images will aid me with arguments and demonstrate how these architects used new technologies.

How New Technologies and Materials are Creating a Path for Easier Ways to Build, Design and Change the Built Environment? By looking at the case studies I hope to illustrate/explore how two famous churches contribute to the debate of modern design technologies, in very specific ways.

By the end of this essay, the reader will be able to understand in more detail what the modernism movement is about and with more depth into the materiality/techniques that were created to help builders and architects.

Construction

The Riola Church Project is a response to the Modernist Architecture¹ of its day.

This movement became extremely important by creating minimalism in Architecture in the 20th Century, which Aalto thrived at. The architects and builders used new materials, like concrete, glass, and different framework to create new structural designs, and removed the use of decorative details as part of the façade and interior decorations, simplifying the process.

Riola's Church was designed and constructed from 1969 up until 1980.

The final form of the church was depicted in Aalto's original plan from 1966. The bell tower was not revealed until 1994. As in Seinäjoki, Aalto created a private area in front of the church that



Figure 3 Riola's Church located next to an old highway bridge by the river (Photo by: Maija Holma, Alvar Aalto Foundation) Here we can see the contrast of light, shape and colours between the Parish Church and Nature surrounding it. It is noticeable that the branches of the tree are merging with the colour of the roof.

¹ Modernism Architecture - movement where new techniques and materials were used in a simpler and minimalistic way.

can hold a large number of people during important religious events. He considered the layout of the church, which usually accommodates 200 people, and came up with a plan to divide the space using a sliding wall. This would create a smaller area for religious activities, including the altar, chancel, and baptistery, and a larger space for non-religious events. The vault system is supported by seven gently curved, asymmetrical concrete arches that rise from ground level on one of the long walls.

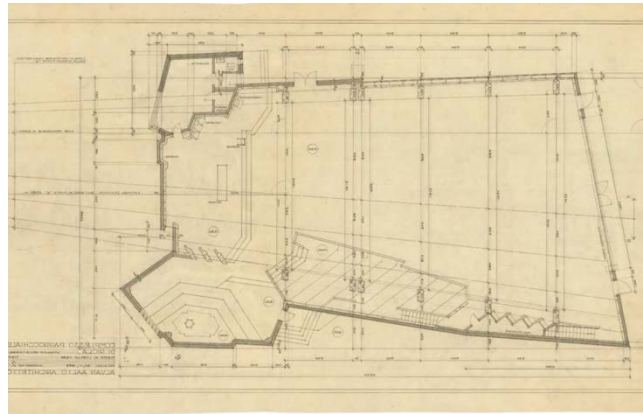


Figure 4 Ground Plan (Drawing by: Alvar Aalto Foundation) This floor plan showcases how the church's structure was built using geometry. When viewed from above, the baptistery side (bottom left) resembles tree rings, which relates to the surrounding forest. This detailed drawing clearly shows the location of the movable wall (bottom middle) and highlights the difference in scale between the two rooms.

The forecourt has a wall separating it from the river ravine on one side and a colonnade and a modest parish building on the other side. The parish building includes youth clubs, meeting rooms, and other facilities. The church was constructed near the Reno River, providing a striking contrast to the mountains in the background. Having these natural forms surrounding the site area, inspired Aalto for this project. This concrete structure mimics its surrounding landscape's natural forms contrasting the Parish Church in the outer forms.

The building complements the surrounding landscape from the outside, with colours, sounds and forms. The curving shapes inside the building, transform the structure of the church itself, making it bigger, inside out. As Vezio Neva said, "Every curve and angle in this space is meaningful and yet so natural". (F J. Martim de Lima, J. Rautsi, H. M. Teravainen, 2021, pp.241)

In connection with the quote, there are shapes that, along with the structure design, relate to the nature surrounding the outside of the church, helping it look more comfortable and natural to our eyes.

The curves on the side of the church are contrasting with the curves of the mountains and the waves of the water from the river. The soft, yet sturdiness of the building's structure is made from reinforced concrete (with a metal frame inside it), which was new to this new movement era.

The Basilica de la Sagrada Familia has been designed by a different number of architects throughout the years. It is a 140-year-long project which is still being built today. It is



Figure 5 Nativity façade (Photo by: Sagrada Familia Foundation) The beauty of this façade is not solely attributed to the sunset, but also to the intricate details visible in the shadows, creating a unique texture. As I gaze at the water, the church's architecture appears more peaceful and less hectic.

predicted to be completed in 2026. The project did not have final drawings when construction began after Francisco de Paula Del Villar resigned from designing the church. There were no final drawings of the whole project. Antoni Gaudí took over in 1883 and redesigned the building, The Basilica designed by Gaudí is a remarkable piece of work that draws inspiration from the original neo-gothic² creation of Paula del Villar. The primary nave leads to an altar and is crossed by a transept. Currently unfinished, it is set to have eighteen towers, in addition to two sacristies and a cloister behind the altar. The building boasts three main façades and entrances, two on either side of the crossing. The Nativity is located to the east, while the Passion can be found to the west. The Glory is situated at the opposite end of the altar. The cumulative twelve towers, four on each main façade and representing the twelve Apostles, are adorned with four towers surrounding the Jesus Christ tower, symbolizing the four Evangelists. The final two towers, the highest of the 18, represent Jesus Christ and the Virgin Mary respectively.

The floor plan of the Basilica is inspired by the shape of a Latin cross that is 90 meters long, with naves bordered by a 60-meter-long and 45-meter-wide transept.

The main entrance is through the Glory façade, leading to an aisle flanked by two rows of columns and side aisles. The altar is composed of a Crucifixion sculpture hanging beneath a baldachin. As visitors move through the church, they are guided to the altar, passing a sculpture of Joseph and the Virgin Mary at the crossing. A sculpture of St. George crafted by Joseph Maria Subirachs is located above the doors at the main entrance. An array of ochre and golden-coloured fabric encrusted with star-like formations hangs from the metal frame above the altar, while glass grapes and lamps adorn the sides. The lighting system highlights the red letters and the golden mosaic in the apse skylight.

The interior of the Basilica is embellished with detailed crystallisations and complex surfaces, changing each planar surface into multiple. The Sagrada Familia has 36 forest-like columns and 5 naves. The main nave is elevated and connects to the transept. The choir and altar are in the rear, with beautiful stained-glass windows illuminating the altar. The columns are



Figure 6 Passion façade and the Sacristy (Photo by: Sagrada Familia Foundation) Here is another view of the church, showcasing new towers, statues, and textures with more detail.

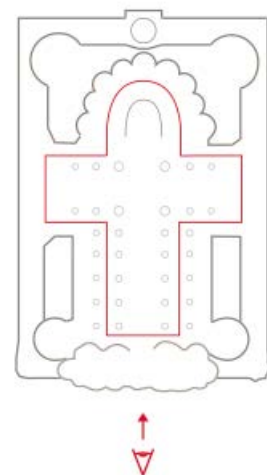


Figure 7 Floor Plan Illustration (Illustration by: Sagrada Familia Foundation) The cross is highlighted in this illustration because it is significant to the structure and religious history of the church.

² Neo-gothic Architecture – a movement that revived Gothic forms in Architecture (pointed arches, variety of materials, rich colours, and decorations)

double twisted with fluted sides, branching into spines above the capitals. The ovular display reflects emitted light with detailed recollective designs of outlines of planets and rings. The four columns surrounding the centre of the crossing are of a warmer rose-coloured stone, with ovular details facing the centre coloured yellow, blue, orange, and green, representing the four Evangelists.



As Le Corbusier said, 'A seriously minded architect, looking at it as an architect [...], will find in a steamship his freedom from an age-long but contemptible enslavement to the past.' (Le Corbusier, *Eyes which do not see*, 1923, pg.103 lines 3-6)

Figure 8 Stained-glass windows and vaults inside the temple (Photo by: Sagrada Familia Foundation) This stunning photograph captures the vibrant coloured light streaks emanating from the stained-glass windows. I noticed the intricate details on the ceiling of the church that resemble flowers and tree rings.

Referring to this quote, Le Corbusier was using the ship as a metaphor demonstrating that we should not always do the same type of design if we want to change. They reinvented Architecture. Both these amazing churches have in common the way that the architects thought so carefully about representing and relating the building to its surroundings and religious history. Aalto adapted the building in a way to create different spaces for different occasions but ultimately, he made the changes to give the building a peaceful and welcomed feeling. Aalto also implied the relation to nature in his building by making it minimalistic, whilst Gaudí, designed the church to have a lot of detail and to demonstrate the history of religion through the walls and statues in and out of the building. Gaudí helped make the building more welcoming, peaceful and at the same time alive and fun for anyone curious about architecture.

Materiality / Ornamentation (Light Study)

Throughout the developmental stages of Riola's project, the surrounding landscape and nature were a primary focus. The design is mindful of the sacredness of human life, from birth to death. The lines, volumes, and lighting all draw attention to the central part of the liturgy, while the furnishing is kept to a minimum to avoid distraction. The interior of the Riola Church can be seen as calming and peaceful because of its materiality. The use of its supporting beams can be seen from the inside of the church,



Figure 9 Concrete Arches during construction (Photo by: Alvar Aalto Foundation) Seeing photographs of the process of the construction is always important. Observing the progress of a man working on the beam is quite impressive, seeing the methods used. and satisfying. This photo offers a clear view of the interior of a reinforced concrete beam and its curved design.

and it demonstrates to the curious eye how the walls, and the roof are being supported with reinforced concrete with stone flooring. The walls supposedly connecting to the river are, unfortunately, incomplete. The light colour, white, on the walls contribute to the overall mood and aesthetic of the building's interior design.

The light coming from the roof brings an angelic calming light into the building which correlates with the theme of religion, modern architecture, and minimalism. The natural light enriches the space. The minimalism in the interior design highlights the space and its calming light, which is directly related to the light and peace of God. The furniture is simple to be comfortable and at the same time to recollect the Finish Landscape. Aalto design's desired simple yet comfortable furnishings are inspired by the gentle curves of the Finnish landscape. The clean and soft lines complement the simplicity of the interior, adding and highlighting the natural elements in the furnishings. The use of natural light elevates and enhances the form of the space from the inside out.

The design of the roof is inspired by the mountainous landscape surrounding the site. The porch's clean and straightforward lines guide us towards the sacred place, showcasing a design that is both elegant and intricate, thanks to its materiality and the way it can be easily manipulated. Aalto intended to use materials that could be bent/changed into curves and to resist the humidity from the nearby river while reflecting the site's natural surroundings.

One of the features that make Sagrada Familia so enchanting is Gaudi's use of lighting and colours to create a heavenly atmosphere within the church's interiors. The stunning Sagrada Familia basilica features large and vibrant stained-glass windows that beautifully illuminate the interior with hues of red, green, blue, and yellow. To achieve the perfect balance between the colours of the glass and natural light, the arrangement places brightly coloured windows at the bottom and translucent windows on top. This creates a peaceful atmosphere for prayer and meditation. Each window's colours hold



Figure 10 Church Hall (Photo: Francio Di Capua, ArchDaily) As we step into the Parish church, we are immediately struck by the calming and soothing interior design. The colour of the walls, as well as the colour and material of the furniture, all work together to create a peaceful atmosphere.

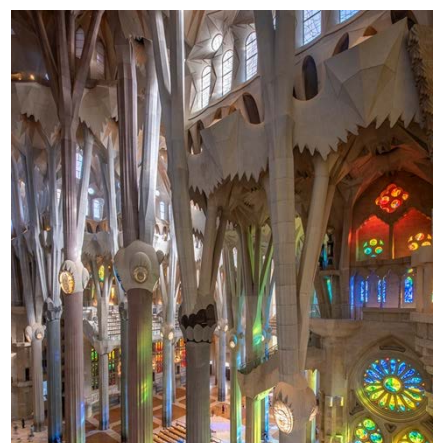


Figure 10 Details of the Interior of the Basilica (Photo by: Sagrada Familia Foundation) Looking at it from a different angle, you can notice a contrast in colours between the higher and lower windows. This not only brings in more light, but also creates a unique sense of tranquillity.

sacred representations, with the Nativity portal's yellow, green, and blue symbolizing poverty, light, and Christ's birth, while the Passion portal's red, yellow, and orange allude to water, resurrection, and light.

The design of the columns resembles tree trunks, giving visitors the impression of being surrounded by a dense forest. The columns also branch out, creating an illusion of a canopy of palm trees. Interestingly, two of the pillars are anchored by a tortoise and a turtle at the base, symbolizing the earth and the sea.

Other structural elements within the building draw inspiration from nature, such as the spiral staircase, catenary arches, conoid-shaped roofs, and an altar adorned with a grapevine canopy. Ornamental details, such as the vine-shaped frieze, honeycomb gates, diatom-shaped windows, and depictions of displaced animals in the gargoyles and pinnacles, create a representation of natural elements. Additionally, the pyrite crystals and grasses incorporated into the design add to the organic feel of the building. As it was written, “All the forces of nature converge and work together to produce this particular configuration: the refined air, the bright light, the colour of the sky, the floating clouds, the slope of the mountains, the boulders scattered around the Temple’s stylobate and the grass growing up between the cracks.” (Dimitris Pikionis, *A sentimental topography*, 1935, pg. 11, line 23-27)

This is an accurate portrayal of a project like *Sagrada de Familia*, where the interior and exterior are seamlessly integrated to reflect the surrounding natural environment. The design process involves meticulous attention to detail, from the towering structures to the smallest façade elements.

Dimitris Pikionis once wrote, “Light created the world. Light preserves it and makes it fruitful.” (Dimitris Pikionis, *A sentimental topography*, 1935, pg. 9, line 4)

The architects behind these projects have conducted extensive studies on light, colours, and ornamentation, which are reflected in their designs. Their focus is on utilizing natural light within the building while also experimenting with different glass colours, structures, and window designs to manipulate it into a godly-like atmosphere. This quote effectively summarizes their approach. They both were able to achieve it, even though both projects are completely different, using the same style.

Overlapping Themes

The Riola Church Project by Aalto was a response to modernist architecture that emphasized simplicity. This project effectively showcases modernism by utilizing new materials and minimalist designs with organic shapes. Aalto decided to not overcomplicate a design that reminisces nature. “It is general artistic production that the style of an epoch is found or not, [...] in certain productions of an ornamental kind, mere superfluities

which overload the system of thought which alone furnishes the element of a style.” (Kari Jormakka, *Eyes that do not see: perspectives on functionalist architectural theory*, 2011, Page 89) Aalto prefers simple modern design, making this quote relevant to their style.

Gaudi, a well-known architect, created Biomimetic Architecture³, which combines natural elements with modernist architecture. He deliberately avoided using straight lines and angles, which are not typical in nature, in his structures.

These two exceptional constructions share similarities in their innovative designs. Despite their different design approaches, both churches are linked by their themes of religion and nature. They also seamlessly incorporated the natural history of their site locations into their designs, making them unique projects. Aalto and Gaudí, who both reinvented architecture in their own unique ways. Their churches are both remarkable in the way they integrate with their surroundings and religious history. Aalto created different spaces for different occasions while maintaining a peaceful atmosphere and connection to nature through a minimalist approach. Gaudí, on the other hand, incorporated intricate details and religious symbolism into the church's walls and statues, making it both welcoming and lively for those interested in architecture.

Conclusion

The Riola Church Project was a response to the modernist architecture of its day, which Aalto thrived at. The church stands in close proximity to the Reno River, providing a stunning visual contrast against the majestic mountains that serve as its backdrop. The Riola Church was designed to complement the surrounding landscape from the outside with colours, sounds and forms.

The Basilica de la Sagrada Familia is a remarkable piece of work that draws inspiration from the original neo-gothic creation of Paula del Villar. With Gaudi's Biomimetic Architecture is a masterpiece that skilfully blends natural elements with modernist architecture.

Through the process of composing this essay, I have acquired a heightened comprehension of two designs that, upon initial inspection, may seem quite different. Despite their belonging to the modern movement, each design possesses its own unique characteristics that distinguish it from the other. One of the designs is adorned with intricate details both inside and out, while the other boasts a simpler overall aesthetic but is more complex in terms of materiality. Such insightful analysis has allowed me to appreciate the nuances of each design even further.

³ Biomimetic Architecture – searching solutions that are mimetic forms usually found in nature (forms, systems and processes)

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Figures / Illustration Reference List

FIGURE 1 INSIDE RIOLA'S CHURCH (PHOTO BY: FABIO LIMA, AALTO FOUNDATION) CALMING MINIMALISTIC CHURCH.....	1
FIGURE 2 INSIDE BASÍLICA DE LA SAGRADA FAMÍLIA (PHOTO BY: SAGRADA FAMÍLIA FOUNDATION) CALMING DETAILED CHURCH.....	1
FIGURE 3 RIOLA'S CHURCH LOCATED NEXT TO AN OLD HIGHWAY BRIDGE BY THE RIVER (PHOTO BY: MAIJA HOLMA, ALVAR AALTO FOUNDATION) HERE WE CAN SEE THE CONTRAST OF LIGHT, SHAPE AND COLOURS BETWEEN THE PARISH CHURCH AND NATURE SURROUNDING IT. IT IS NOTICEABLE THAT THE BRANCHES OF THE TREE ARE MERGING WITH THE COLOUR OF THE ROOF.....	3
FIGURE 4 GROUND PLAN (DRAWING BY: ALVAR AALTO FOUNDATION) THIS FLOOR PLAN SHOWCASES HOW THE CHURCH'S STRUCTURE WAS BUILT USING GEOMETRY. WHEN VIEWED FROM ABOVE, THE BAPTISTERY SIDE (BOTTOM LEFT) RESEMBLES TREE RINGS, WHICH RELATES TO THE SURROUNDING FOREST. THIS DETAILED DRAWING CLEARLY SHOWS THE LOCATION OF THE MOVABLE WALL (BOTTOM MIDDLE) AND HIGHLIGHTS THE DIFFERENCE IN SCALE BETWEEN THE TWO ROOMS.	4
FIGURE 5 NATIVITY FAÇADE (PHOTO BY: SAGRADA FAMILIA FOUNDATION) THE BEAUTY OF THIS FAÇADE IS NOT SOLELY ATTRIBUTED TO THE SUNSET, BUT ALSO TO THE INTRICATE DETAILS VISIBLE IN THE SHADOWS, CREATING A UNIQUE TEXTURE. AS I GAZE AT THE WATER, THE CHURCH'S ARCHITECTURE APPEARS MORE PEACEFUL AND LESS HECTIC....	4
FIGURE 6 PASSION FAÇADE AND THE SACRISTY (PHOTO BY: SAGRADA FAMILIA FOUNDATION) HERE IS ANOTHER VIEW OF THE CHURCH, SHOWCASING NEW TOWERS, STATUES, AND TEXTURES WITH MORE DETAIL.....	5
FIGURE 7 FLOOR PLAN ILLUSTRATION (ILLUSTRATION BY: SAGRADA FAMILIA FOUNDATION) THE CROSS IS HIGHLIGHTED IN THIS ILLUSTRATION BECAUSE IT IS SIGNIFICANT TO THE STRUCTURE AND RELIGIOUS HISTORY OF THE CHURCH.	5
FIGURE 8 STAINED-GLASS WINDOWS AND VAULTS INSIDE THE TEMPLE (PHOTO BY: SAGRADA FAMILIA FOUNDATION) THIS STUNNING PHOTOGRAPH CAPTURES THE VIBRANT COLOURED LIGHT STREAKS EMANATING FROM THE STAINED-GLASS WINDOWS. I NOTICED THE INTRICATE DETAILS ON THE CEILING OF THE CHURCH THAT RESEMBLE FLOWERS AND TREE RINGS.....	6
FIGURE 9 CONCRETE ARCHES DURING CONSTRUCTION (PHOTO BY: ALVAR AALTO FOUNDATION) SEEING PHOTOGRAPHS OF THE PROCESS OF THE CONSTRUCTION IS ALWAYS IMPORTANT. OBSERVING THE PROGRESS OF A MAN WORKING ON THE BEAM IS QUITE IMPRESSIVE, SEEING THE METHODS USED. AND SATISFYING. THIS PHOTO OFFERS A CLEAR VIEW OF THE INTERIOR OF A REINFORCED CONCRETE BEAM AND ITS CURVED DESIGN.	6
FIGURE 10 CHURCH HALL (PHOTO: FRANCIÒ DI CAPUA, ARCHDAILY) AS WE STEP INTO THE PARISH CHURCH, WE ARE IMMEDIATELY STRUCK BY THE CALMING AND SOOTHING INTERIOR DESIGN. THE COLOUR OF THE WALLS, AS WELL AS THE COLOUR AND MATERIAL OF THE FURNITURE, ALL WORK TOGETHER TO CREATE A PEACEFUL ATMOSPHERE.	7
FIGURE 10 DETAILS OF THE INTERIOR OF THE BASILICA (PHOTO BY: SAGRADA FAMILIA FOUNDATION) LOOKING AT IT FROM A DIFFERENT ANGLE, YOU CAN NOTICE A CONTRAST IN COLOURS BETWEEN THE HIGHER AND LOWER WINDOWS. THIS NOT ONLY BRINGS IN MORE LIGHT, BUT ALSO CREATES A UNIQUE SENSE OF TRANQUILLITY.	7