# History of Architecture and Culture – 5
# Lecture - 16

## Works of Antonio Gaudi

Antonio Gaudi was a catalan architect, whose distinctive style is characterized by freedom of form, voluptuous colour and texture and organic unity. Gaudi entirely worked in the Barcelona city or nearby by his. Most of his career was occupied by construction of sagrada familia which was still unfinished during his death in 1926. He was born in catalonia on the meditrranean coast of spain in a moddest family. He was the son of a coppersmith. But he showed early interest in architecture,in 1869/70 he went to study in Barcelona. It was then the political and intellectual centre of catalonia one of the spain's most modern city at that particular point of time. He finished his school, there in architecture and then the director of his school has noted to have acclaimed, while he was giving his degree " I still don't know whether we are giving a degree to a genius or lunatic, such was his architecture His quest for a new architectural language went towards exploring different kinds of the new geometric forms. So the result was the nave of the sagrada familia church with a hyperboloid vault. Hiis inspiration from nature is taking from a tree as a column, it looks like a trunk, branches symbolizes the trees and raising up to the roof. His study of nature translated to the rule of geometric forms such as hyberbolic and paraboloid, helicoid of the cone and it also reflects in the forms of gaudi would found in nature. gaudi used generic tricks which is like the rule surfaces that form, generated in form of straight lines. He found lot of such examples in reeds and bones and other plants. For him, there is no better structure than the trunk of a tree or human skeleton. He found all his inspirations from there. These forms are sometime functional and at the same time aesthetic. Gaudi discovered how to adapt the language of nature to the structural forms of architecture. he used to equate the helicoid form to movement and the hyperboloid to light. Paraboloids,hyperboloids, helicoids, conoids, constantly varying the incidence of light. They make necessary ornamentation and even modelling necessary. His architectural approach tends to begin with organic biomorphic forms which often had no previous examples ever, which spiraloids into thoughts, feelings and moods and what he was feeling at that particular point of time. He uses soft, fluid formations rather than harsh, solid lines, if you see his example, Casa Mila, his exterior mimics the flowing waves of the sea. The terraced roof of the building offers a truly characteristics vista into the gaudiesque with its irregular chimneys standing tall like soldiers, covered with multicolored broken tiles.

**Casa Mila**

Casa Mila is 1323 sqm per floor on a c he has designed hplot of about 1620 sqm. Gaudi began the first sketches in his workshop in the sagrada familia itself, where he conceived of this house as a constant curve both outside and inside. He incorporated multiple solutions of formal geometry and elements of a naturalistic ideal. He tried to incorporate the naturalistic ideal and formal geometry of elements, he fused them both and that is when his forms developed. Casa Mila is the result of 2 buildings structured around 2 courtyards that provides lights to 9 levels which he has designed plus the basement and the ground floor. The mezzanine which Is the noble floor, the basement of casa mila was intended to be the garage, the main floor the residence of the garage which is all about 1323 sqm and the rest of the floor he distributed over 20 homes in rest of the floors. The end product looked like an asymmetrical 8 shaped building because of the different size of the 2 courtyards which he has placed. The artic, the drawing house, the laundry and other areas of the house was forming an insulating space for the building determining the levels of the roof itself. because the top floors might be little too hot during the summers. So he put the laundry and other services in the top floor, since he did not require lot of floor space for that, he even shaped the roof levels on that particular floor pretty easily. You can see them clearly over here. one of the significant portion of the building is the roof itself, it has skylights or staircase, exits, fans and chimneys. The all have specific architectural function but they have become real sculptures which he has added into the building. the building itself is an unique identity, the shape of the exterior continuous to the shape of the interior. The apartment features ceiling with plaster reliefs and grid dynamism and hand crafted different doors, windows, furniture everything. But sadly the hand crafted furniture are not present right now. The plaster interiors, the external chimneys, the stairways which were intended for services in access to housing was by elevator except for the noble floor where Gaudi added a staircase. The noble floor is 1$^{st}$ mazennin floor from the ground. Gaudi did a very interesting thing in his apartment. Even back in that age he wanted the people who lived in that flat to know each other and to talk to each other. Therefore there were only lifts on every second floor so people had to communicate with one another on different floors. That means for catching the lift one has to go the other floor, so they will eventually talk, lot of incidental talking happening due to this simple architectural decisions. If you view the building from outside, there are clearly three parts, the main body of the six story blocks with winding stone floors, block

back with a change of pace in waves, similar to the waves of the sea, texture more smooth and white, with small holes that seem like gun boats and finally the body of the roof. Waves that is bought earlier, roofs, finial. the original façade of gaudi were being replaced. In 1928 there was tailor mosella opned the first store in La pedrera, he reworked and eliminated all the caste and bars because at the middle of the 20th century twisted iron work caught very little importance and nobody really cared about removing all the iron works. Nobody cared about defaming the works of a grant work of a architecture. Most of the iron work was lost until a few years later, when americans donated one of them to the Museum of modern art where it is on display right now. Except for that most of the iron works was lost. This is the elevation of the building, shown in the different façade. This is the plan of casa mila. Look at how the exterior has simply transformed with the interior. The interior is no different from the exterior. Each room clearly designed as an organic shape with the exterior flowing into the interior. You can see the 8 shaped building with 2 irregular shaped courtyards. There is also another feature in this building. The building has a original solution, in solving the loby part. Usually the loby part of the apartment complexes are closed dark. But in this complex, it is open and airy because the courtyards make a very important role here. It not only creates a light and air movement, It also creates a place of transit which is clearly visible to the user who is accessing across. so there is visual quality which is generated out of these courtyards, the asymmetric section of the casa mila and another section. in the courtyard elliptical beams and girders adopt a constructive solution traditional but cylindrical, but gaudi incorporated an ingenious solution. He used two concentric cylindrical beams, stretched radial beams like the spokes of a bicycle. They form a point outside the beam making the function of central grader and key stone works in tensional compression simultaneously.

**Sagrada Familia**

Look at another interesting building the sagrada familia, which the architect devoted almost entire of his life. The construction began in 1882. It is probably the best known structure of catalan modernism because if we remember the art nouveau earlier it is called the modernism in spain. It draws over 3 million visitor every year, the project is still under construction. It is expected to be completed by 2026 because the constructions are still going on according to the designs which gaudi had planned even before his death. Even though this building is not completed, it is the UNESCO World heritage site. Gaudi was appointed the architect of this building in 1883 at 31 years of age following a lot of

disagreements between the temple promoters and the original architect Francisco de Lozano. But what gaudi did was, he maintained the lazano's latin cross plan which was typical of gothic cathedrals that day. But then what he did was, he departed from the gothic cathedral from lot of ways, in several ways. Most notably, what he did was he developed angled columns, he did not have straight columns, he had angled columns and had hyperboloid vaults which seriously eliminated the flying butters on the exterior. This is the sagrada familia, you can see the angled columns, hyperboloid arches eliminated to the requirement of flying buttresses. Sagrada familia uses 3 d forma of rules and faces which includes hyperboloids, parabolas, helicoids and conoids all the regular thing that gaudi uses. Rather than relying on the exterior elements, horizontal loads are transferred through columns on the interior itself. Usually churches of that day had exterior elements like buttresses and flying buttresses to transfer the horizontal or lateral roads, instead Gaudi used interior column itself to transfer the lateral loads. These complex shapes allow for a thinner, finer structure which gave another important quality to the building,because if the structure became thinner and finer, there is a possibility of having more amount of light into the building. Gaudi used plaster models which he made to design, to develop his building and even to view, what he has designed. Including 1 in 10 scale modern of the main naïve, the model itself measured 5 mts in height and 2 mts. The model itself measure 5 mts in height and width and 2 mts in depth. He also devised a system of strings and weights suspended from a plan of the temple on the ceiling. From this inverted model, he derived the necessary angles and columns. Here is the section of the building. Gaudi embedded religious symbolism in each aspect of La sagrada familia. hE created visual representation of most of the Christian beliefs in the form of sculpture and art. The sculpting of the nativity façade recalls smooth intricate corbelling which gaudi oversaw himself. There are three facades for the entire basilica, the glory façade, the nativity façade and the passion façade facing south, east and west respectively. The glory façade is in south, the nativity façade is east and passion is west façade. west façade is the main entrance of the building so passion is the west façade. East is where the God is, so in east he made the nativity façade. and south is another side of the church. So glory faced on the side. He had the famous sculpture, joseph maria whose angular sculpture extend the modernist character to the temple. You can see some of the angular sculptures which he has designed. The central nave soars to a height of 45 metres. It is designed to resemble a forest of lot of piers. There are lot of piers in the east and they keep branching out like this, so this will look like a forest made of multi color,

multi hued made of stuck over works of different stones. The piers change in cross section from base to terrace increasing in number of vertices because if you take the section here, the number of vertices is less but if you take the section here, the number of vertices that you see on top is more. The slender bifurcating columns draw the eye upward, where the light filters through circular apertures in the vaults The openings are finished in venetian glass and the tiles are in green and gold which articulates clearly the lines of hyperboloids. After completion, sagrada familia will have 18 towers composed to present a unique view of the temple from any single vintage point, that was the idea of Antonio gaudi. They have 4 bell towers representing the apostles who will be crowning each façade each one approximately 100 mts height. At the north end there will be a tower representing a virgin mary standing over the apse. The central tower will reach 72 metres in height and symbolize Christ, surrounded by 4 towers representing the evangelist. the subsequent generations of craftsman and architects after gaudi's death relied mainly on the remaining drawings and plaster models which gaudi had made to advance the project because they wanted to achiece gaudi's vision as closely as possible. Example if you see here, this is the original faced which was designed by gaudi, this was the addition made by later architects and engineers. Clearly you can see that, they dint want to do the same thing because they wanted to differentiate which was the original work and which was the addition. So they used different kind of material to distinguish that. As a result the temple design is a collaboration itself spanning over centuries. Gaudi himself, to be truly honest viewed the project as a collaborative work of generations. Because he wrote " I will grow old but others will come after me. What must be conserved is the spirit of the work, but its life has to depend on the generations it is handed down to and with whom it lives and is incarnated" He expected people to take on the lead from where he left off to pass on the work that he is supposed to complete. He himself envisioned that the project will be a collaborative work of many generations whoever expected. The church which was started by an architect before him in 1882, came to his hand in 1883 a year later and he took it till 1926 and from there, there were generations of architects that worked on the sagrada family and it will be completed only by 2026 nearly 150 years for making a modern church. These are some of the drawings which gaudi had made. these are some of the towers which he had designed. If you take the cross section or if you take the plan of each of these areas, the plan here looks like this, take the plan here, it looks like this the plan here looks like this,here like this and on top like this. look at the amount of time and amount of effort the architect has made to create such complex 3

dimensional work of art, where he is able to do different types of plans in same structure at different levels. HERE YOU CAN CLEARLY SEE WHAT GAUDI HAD BUILT here and the rest of the things and lines will be built by 2026 what gaudi had planned for this building. Here you can see the structural model of central naïve showing all the forested piers and columns which clears here. The next project is park Guell, which is an interesting public park project. Here his client guell wanted gaudi to design a park which is meant for aristocrats and bureaucrats o his time. So what he did was, guell thought he would build apartment complexes which overlooks the park and he can use this apartment and park as good money spinner. So the park was designed by gaudi and the apartment complex was supposed to be designed later. But only 2 houses were eventually built and one of them, even gaudi inhabited the building. It was designed by another architect and not gaudi. It was designed by some other person. the park was designed by gaudi. The park is characterized by entrance which is flat by 2 gaudi building with its 2 towers. It has unique elements with the use of mosaic, complex curves, his usual angular columns, taking the load vertical and lateral load together at the same time. look at the vibrant colors and textures that gaudi had explored in this building. the visitors to this park are generally amazed with the exempt of work that gaudi had done in his life time. Here is the entrance park which say park guell. this is the artistic impression of how park guell will look like with the entrance flat by the 2 designs designed by gaudi