

## **What is architecture and architectural history?**

Architecture is the science of the design of structures or buildings such as houses, places of worship, office buildings. Architecture is also the profession of an architect. A person must study at an institution of higher education to become an architect. Architecture can be about small designs such as a garage or large designs such as a whole city. Architecture often overlaps with civil engineering, and architects and civil engineers often work together.

### **A brief History**

In the past people built huts and wood houses to protect themselves from the weather. For safety, they were often close together. Great civilizations like the Ancient Egyptians built large temples and structures, like the Great Pyramids of Giza. The Ancient Greeks and Romans made what we now call Classical Architecture. The Romans, working over 2000 years ago, copied the arch from the Etruscans, who copied it from the Mesopotamians. The stone columns, which still hold up so many important buildings, like the Parthenon in Athens, were simply copied from the first wooden posts.

Classical Architecture was very formal; it always obeyed laws. It used symmetry, which really means balance, and it used proportion which means keeping shapes in certain ways. The Golden Mean was a rule (or law) which said, if you are making a room, or any other thing, it will work best if you always make the long side 1.6 times longer than the short side. There are many laws in Classical Architecture, like how high the middle of an arched bridge needs to be. These laws were learned from thousands

of years of experience and today they are as true as they were 2000 years ago.

In some parts of the world, like India, the architecture is famous for carving the stone on temples and palaces. Different architectural styles were made in China, Japan, Southeast Asia, Africa, Mexico, and Central and South America.

Later, people in Western Europe in the Middle Ages made Romanesque architecture, then Gothic architecture. Gothic buildings have tall, pointed windows and arches. Many churches have Gothic architecture. Castles were also built at this time. In Eastern Europe, churches usually had domes. People added their own ideas and decoration to the Classical Architecture of the past. The Renaissance brought a return to classical ideas.

In the late 18th century with the Industrial Revolution, people began to invent machines to make things quickly and cheaply. Many factories and mills were built during, or after this revolution. Decades later, in the Victorian era, architects like George Fowler Jones and Decimus Burton still followed the Gothic style to build new churches. Up to this point, buildings were limited in size and style by the strength of the wood and masonry used to construct them. Gothic cathedrals were among the largest buildings because the Gothic arch when combined with buttresses allowed stone buildings to be built taller. For example, the cathedral in Ulm, Germany is over 500 feet tall. However, building with stone has its limits, and building too tall could result in collapse, an example of which is the Beauvais Cathedral, which was never completed.

Towards the end of the 19th Century with a second Industrial Revolution, steel became much cheaper. Architects began to use inventions like metal girders and reinforced concrete to build. An

example is the Eiffel Tower in Paris. Buildings can now be built taller than ever before. We call them skyscrapers. This new technology has made us free from traditional limitations, and because of the new possibilities presented by these materials, many traditional methods of construction and ideas about style were reevaluated, replaced, or abandoned. Cheap, strong glass soon brought transparent exterior walls, especially for office buildings.

Modernism is the name for the architectural style which developed because of these new building technologies. Modernism can also refer to a specific group of architects and buildings from the early to late 20th century, and so may not be the proper term to use for many building built since then, which are sometimes called "post-modern".

Many of the world's greatest structures were built by modern day architects such as Frank Lloyd Wright, I. M. Pei, Adrian Smith, Edward Durell Stone, Fazlur Khan, and Bruce Graham.

## **History of Eroupean Architecture**

### **Romanesque architecture**

"Romanesque" was the style of architecture in Europe before the "Gothic" style. Gothic architecture grew out of Romanesque architecture. There was not a clean break between the two styles. Many of the features of Gothic architecture did not begin in the Gothic period. They were already there in Romanesque architecture, and slowly changed to become Gothic. The main changes were the pointed arch and the flying buttress. These two developments allowed many other changes to happen.

Romanesque buildings had thick walls, small windows, round arches and flat buttresses. Gothic buildings had thinner walls, larger windows, pointed arches and large buttresses.

All the types of buildings and the general shape of the buildings were already there in the Romanesque period. The types of buildings were: the cathedral church, the parish church, the monastery, the castle, the palace, and the great hall.

Before the 20th century, the landmark building in almost every town was a church, cathedral, abbey, or town hall with its tall tower or spires rising high above all the houses. Many of these buildings were from the Middle Ages and were Romanesque or Gothic in style.

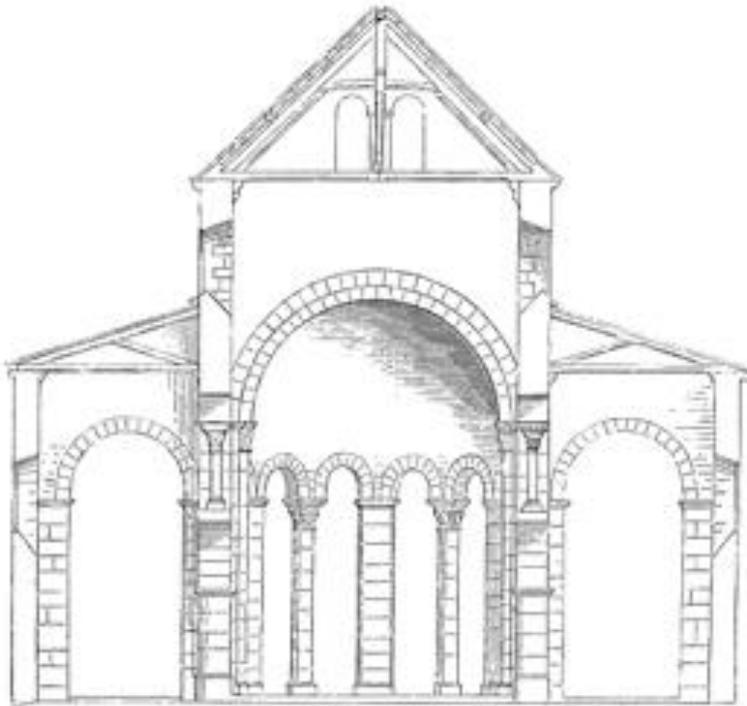
The ground plan of most Gothic churches is shaped like a cross. The long nave makes the body of the church and, crossing it, the arms are called the transept. On the other side of the transept is the chancel which is often called the choir because that is where the priest and the choir sing the services.

The nave usually has a passageway or aisle on either side. Sometimes there are two aisles on each side. The nave is usually a lot taller than the aisles, and has high windows which light up the central space. The upper part of the building, where these windows are, is called the clerestory (or clear storey).

Some Gothic churches in Germany and Austria and also Milan Cathedral (which was built in the German style) often have nave and aisles of almost the same height and are called hall church. The Cathedral of St. Stephen of Vienna is an example.

In some churches with double aisles, like Notre Dame, Paris, the transept does not stick out beyond the aisles. In English cathedrals the

transepts always stick out a long way and sometimes there are two transepts as at Salisbury Cathedral.



**Fig1. Section of a Romanesque church.**

### **Gothic architecture**

Gothic architecture is a style of architecture used in Western Europe in the Middle Ages. It began in France in the 12th century. The Gothic style grew out of Romanesque architecture. It lasted until the 16th century. By that time the Renaissance style of architecture had become popular. The important features of Gothic architecture are the pointed arch, the ribbed vault and the flying buttress.

Gothic architecture is best known as the style of many of the great cathedrals, abbeys and churches of Europe. It is also the architecture of many castles, palaces, town halls, universities, and also some houses.

Many church buildings still remain from this period. Even the smallest Gothic churches are often very beautiful, while many of the larger churches and cathedrals are thought to be priceless works of art. Many are listed with the United Nations Educational, Scientific and Cultural Organization (UNESCO) as World Heritage Sites.

In the 19th century, the Gothic style became popular again, particularly for building churches and universities. This style is called Gothic Revival architecture.

Gothic architecture was at first called "the French Style". The word Gothic was used later during the Renaissance as an insult. In fact, the architecture had nothing to do with the real Goths, a German tribe who attacked Rome in the early Middle Ages.

An Italian writer named Giorgio Vasari used the word "Gothic" in the 1530s, because he thought buildings from the Middle Ages were not carefully planned and measured like Renaissance buildings or the buildings of ancient Rome. After Vasari, many other people used the word "Gothic" to describe architecture with pointed arches

### **Towns, states and countries**

At the end of the 12th century, Western Europe was split into different states which were beginning to become the countries that are known today.

The Holy Roman Empire ruled a big part of Europe including the modern countries of Germany, The Netherlands, Belgium, Luxembourg, Switzerland, Austria, eastern France and much of northern Italy, apart from Venice. Historians believe Emperor Charlemagne began the Holy Roman Empire in 800 AD.

The countries of France and Spain were split into kingdoms. England was ruled by a king whose family also had a lot of land in France.

Norway was influenced by England, while the other Scandinavian countries and Poland were influenced by Germany.

At that time, there was a lot of trade between towns and states. This caused the towns to grow larger. Germany, Holland and Belgium had many big towns that grew peacefully, often trading with each other. Because of the peace and wealth of these towns, they showed their pride by building huge Town Halls, often with very tall towers.

In England and France, most people did not live in towns. They lived on farms, which were often owned by a rich nobleman (or lord). The house of the lord was usually called a Manor house. Italy was mostly split up into small city states which often fought each other. Cities often had high walls and many of the houses built at this time were tall.

### **Abbot Suger and Gothic style**

Abbot Suger was the head of a large monastery just north of Paris in France. The monastery had a large church, the Abbey of Saint-Denis, and also a royal palace where the French kings sometimes stayed. Abbot Suger was a close friend to two kings, Louis VI and Louis VII.

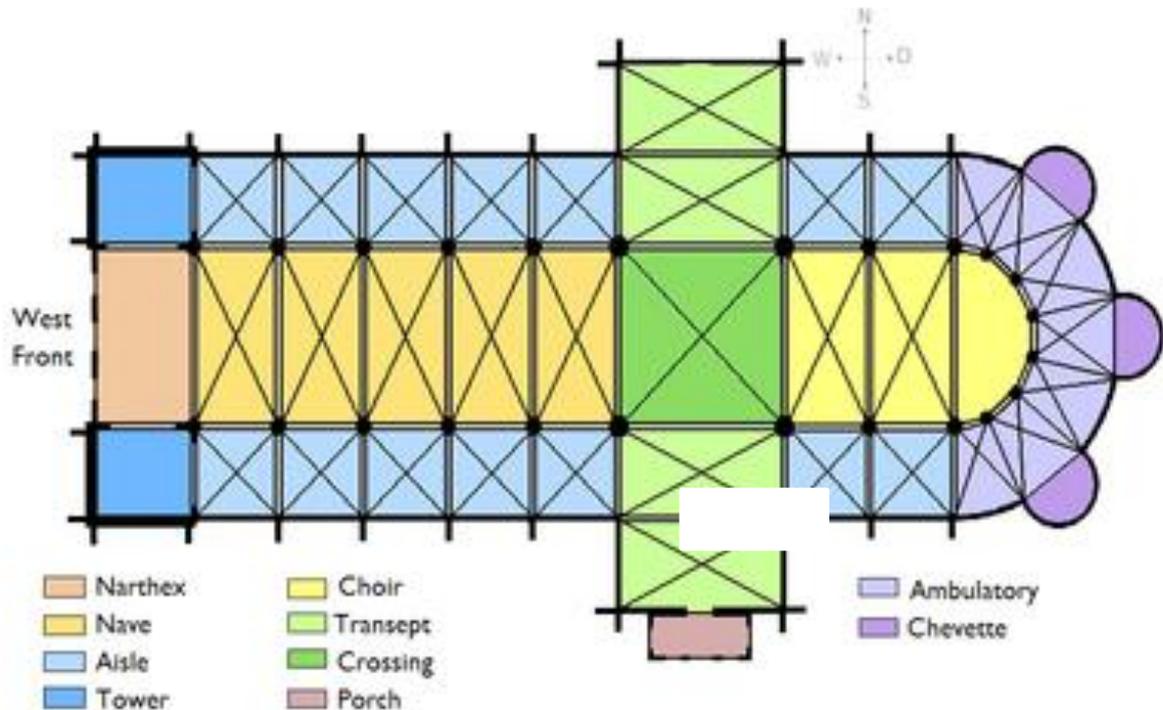
In 1127 Suger had the idea to rebuild the great abbey Church of Saint-Denis. He began by changing the "West Front" or facade which was about 200 years old and had only one small door. Suger's grand design had three big doors like the arches on the Arch of Constantine in Rome, which were to let in all the crowds on special Holy Days. The facade also had a big round window in the centre, called a rose window, which was the first one in France.

Abbot Suger did not then rebuild the part of the church inside the west doors, the "nave" where most of the ordinary people stood. The next part that he rebuilt was the eastern end.

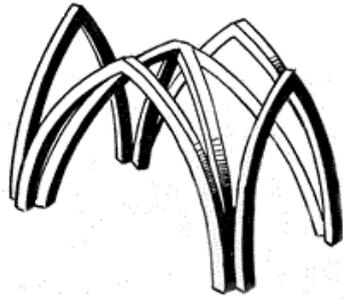
Abbot Suger wanted this part to make people think of Heaven. He wanted it to be very light and bright, with great big windows of beautifully coloured glass. To do this, he looked at all the most modern designs, and all the clever things that other architects had done. He put all the new ideas together in one building. It was the first building of the new "Gothic" style. But of course it was not called Gothic at this time. It was called "the French Style."

The new East End was dedicated or "given to God" on 1144. Other architects soon copied the design for other big churches and cathedrals in northern France. After Abbot Suger's death, the rest of the church was also rebuilt in the new style, and got two more much larger and more decorated rose windows, one on either side.

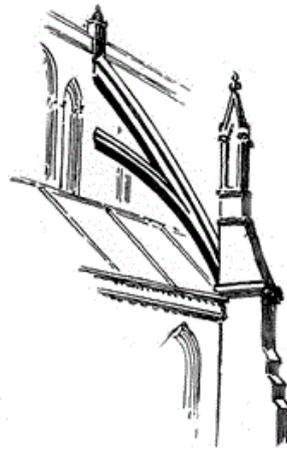
The style soon spread to England and through France, Germany, Spain and northern of Italy and Sicily.



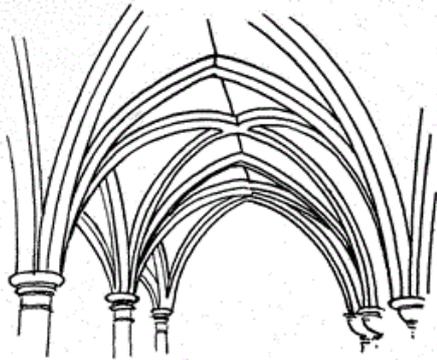
**Fig2. A typical plan of a Gothic church.**



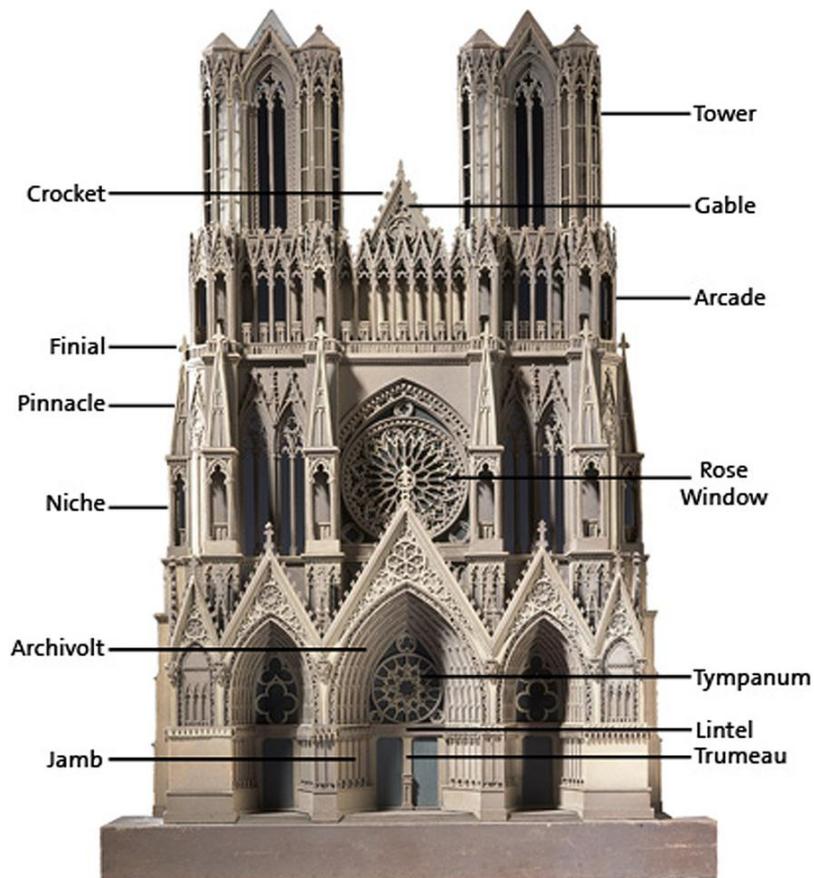
*Ribbed vaulting with pointed arches*



*A flying buttress*



*Aisle of Gothic church with ribbed vaulting*



## Renaissance architecture

The word "Renaissance" derived from the term "la rinascita", which means rebirth, first appeared in Giorgio Vasari's book. Renaissance architecture is the architecture of the period between the early 15th and early 17th centuries in different regions of Europe, demonstrating a conscious revival and development of certain elements of ancient Greek and Roman thought and material culture. Stylistically, Renaissance architecture followed Gothic architecture and was succeeded by Baroque architecture. Developed first in Florence, with Filippo Brunelleschi as one of its innovators, the Renaissance style quickly spread to other Italian cities. The style was carried to France, Germany, England, Russia and other parts of Europe at different dates and with varying degrees of impact.

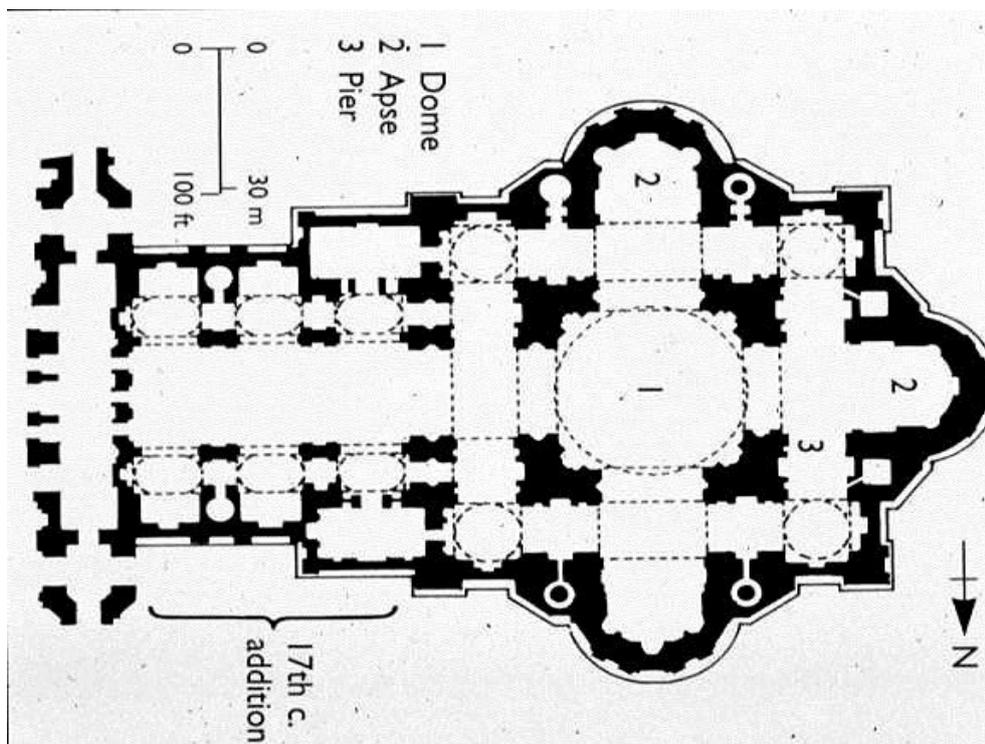
renaissance style places emphasis on symmetry, proportion, geometry and the regularity of parts as they are demonstrated in the architecture of classical antiquity and in particular ancient Roman architecture, of which many examples remained.

Historians often divide the Renaissance in Italy into three phases. Whereas art historians might talk of an "Early Renaissance" period, in which they include developments in 14th-century painting and sculpture, this is usually not the case in architectural history. The bleak economic conditions of the late 14th century did not produce buildings that are considered to be part of the Renaissance. As a result, the word "Renaissance" among architectural historians usually applies to the period 1400 to ca.<sup>1</sup> 1525, or later in the case of non-Italian Renaissances.

---

<sup>1</sup> . abbreviation of circa: around

The plans of Renaissance buildings have a square, symmetrical appearance in which proportions are usually based on a module. Within a church, the module is often the width of an aisle. The need to integrate the design of the plan with the façade was introduced as an issue in the work of Filippo Brunelleschi, but he was never able to carry this aspect of his work into fruition. The first building to demonstrate this was St. Andrea in Mantua by Alberti.



## Modern Architecture

Modernism was a cultural movement in the first part of the 20th century. It occurred in art, literature, music, architecture and drama.

Modernism rejected tradition. It was interested in new ways of doing old things. Also, there was a belief that science and technology could change the world for the better. Modernism began in the late 19th

century and carried on until about 1950. The details differ greatly, and the term covers some movements which are somewhat contradictory.

Modernism in architecture is found in the work of Frank Lloyd Wright, Le Corbusier, Walter Gropius, and Mies van der Rohe. Le Corbusier's famous remark "A building is a machine for living in" shows how different his thinking was to architects of the 19th century. The skyscraper, such as Mies van der Rohe's Seagram Building in New York (1956–1958), became the archetypal modernist building.

Frank Lloyd Wright (1867- 1959) was a famous American architect from the early 20th century. He designed all kinds of buildings including banks, office buildings, churches, a synagogue, a gas station, and an art museum.

Wright designed more than 1,000 structures and completed 532 works. Wright believed in designing structures which were in peace with humanity and its environment. He called his belief organic architecture. He used this technique for his design for Fallingwater (1935). He began an American style of building design and is said to be one of the greatest architects of the twentieth century.

Frank Lloyd Wright designed a summer-house in 1935 for the Kaufmann family over a waterfall in Pennsylvania. He called the house "Fallingwater". Some people say it is the most famous private home in the world.

The house actually sits low in the valley over the stream, but looks dramatic from further downstream. It has large terraces, and some of them stick out and hang over the waterfall or the stream. There are windows and glass doors, with only narrow steel supports between them, wrapping all the way around the living room.

There are also windows going all the way from the floor to the ceiling in all three stories of the tower.

Most of the house is made from stone. There are strong horizontal and vertical lines in the design of the house. It resembles the horizontal and vertical lines in the rock formations and other natural features. The waterfall can be heard everywhere in the house. Wright wanted there to be a close connection between inside and outside, and for the house itself to be natural. In 1991, members of the American Institute of Architects named the Fallingwater house the "best all-time work of American architecture".

One famous house was called the Robie House. It was a unique house with odd shapes, colors and form. He finished making it in 1910, as a house for children. In fact, many children lived and played in that house with their families up until 1926 when it was closed to the public. Many times, it was planned to be destroyed. However, twice, Wright saved his house from destruction because of the reasons he built it and all the memories of it that he loved so much. It is now being restored at a cost of \$10 million.

The Solomon R. Guggenheim Museum in New York City. Wright worked on this project for 16 years (1943–1959) and is probably his most recognized masterpiece. The building is located in Fifth Avenue. Its interior is similar to the inside of a seashell.

Le Corbusier(, 1887 – 1965) was a Swiss-French architect, designer, painter, urban planner, writer, and one of the pioneers of what is now called modern architecture. He was born in Switzerland and became a French citizen in 1930. His career spanned five decades, with his buildings constructed throughout Europe, India, and America.

Dedicated to providing better living conditions for the residents of crowded cities, Le Corbusier was influential in urban planning, and was a founding member of the International Congress of Modern Architecture. (CIAM).

Le Corbusier grew up in a small town in the north of Switzerland. In 1907, aged 19, he moved to the French city of Paris. He traveled across Europe, and learned a lot of new ideas. He learned to speak German and worked with famous architects, such as Peter Behrens.

During World War I, Le Corbusier went back to Switzerland and became a teacher. Soon, he opened his own architectural business with his cousin, and they worked together until 1940. It was in 1918 that he met a painter, Amédée Ozenfant, who would become a great friend. They combined their ideas to create a new type of art called Purism.

After the war, Le Corbusier concentrated on his art until 1922. After this, he began designing apartments that could be stacked on top of each other, to house people and meet their needs. This type of low-density housing was to deal with the problem of over-crowding in Paris. He said this transformation was needed, or a revolution could occur from the unhappy lower classes. He created a design for an ideal city that was never built. It was a plan developed around a lot of skyscrapers. He presented this plan to the French government, who refused it. This did raise their awareness of overcrowding in the city though.

He considered speed in architecture by saying that house is a machine to live in. This machine's purpose is to speed up the activities of the people who live in it. He introduced an idea of building residence with just some slabs, columns, and, stairs. These three things can produce any kind for residence and for any class of people.