

History of Architecture and Culture III

Lecture 4

Timber Roof Architecture

First and foremost, we will be discussing the Timber roof architecture of churches. As you can see in the architecture of churches, the maximum used stones and other building materials, Timber became a part of this, basically in England. During the Gothic time of construction i.e the late medieval period. The English developed this as no other nation did. The construction of timber roofs. So basically, it was elaborate hammer-beam variety of construction in the 15th century. The timber roof was one of the most important feature of English in the late medieval period of construction, especially the Gothic construction. If you see the intrinsic detail of the timber construction or the detailing of the wood, they enhanced the interiors of these Paris churches, the English churches to an extent that it became a landmark of church construction technique. So basically if you see, Timber roof construction evolved and it has other constructions. Timber roof construction evolved from a simple basic construction to an extremely complicated series of construction giving rise to extremely flamboyant highly decorated huge and vast spaces with extreme height to the structure. So, the first type of timber roof that we are going to discuss today is the; Tie beam roof. The Tie beam roof is nothing but the earliest and simplest form of timber roof construction. It has two rafters pitched against one another with a tie beam at their lower ends. Now, you would probably ask me "what is a rafter?". These are the two rafters and this is the tie beam. The simplest of the wooden architecture in the roof started with this and if you can see in this, this is a typical tie beam roof. Here you can see the rafters and here you can see the tie beam in between. This is an example of the Trinity chapel. This type of construction was used only during the Norman period. Leaving this to be the only timber roof construction built during the Norman period. Norman period was when this timber roof construction churches started but then as the timber roof construction kept evolving and various different types of construction came in, even then architects or the artists were not willing to give up this form of construction. If you see even as this evolved, this form of construction alone was repeatedly used even till the

early stage of timber roof construction in churches. So basically, a Central King's post and struts were used in order to support the tie beam to strengthen the framework. Take a look at the picture, this is a King's cross truss, King cross truss is nothing but a central. If you put a central truss here, in order to support the tie beam, that is called the King's post truss. The basic difference between the King and the Queen's , use two supports and the Kings post struts uses only a single support for construction. So one example of such Timber roof i.e tie beam construction is the Morton church in Lincolnshire. So moving on, the next type of construction is the Trussed rafter roofs. So truss rafter roofs originated later. In timber roof, if you see the tie beam roof, you have this tie beam running in the centre. Maximum space utilization for the churches within the interiors is only till here, this goes above the tie beam and it covers an unusable space. If you take a look at the Trussed rafters, they gave maximum space. It was more a linear and taller variant of timber roof. This basically originated in the need for sufficient space for the pointed walls beneath it. Pointed walls as I said, is one of the most important part of the Gothic architecture and that maybe the reason why this evolved. This roof gave the appearance of a greater height, an impressiveness to the interiors, it gave a massive feeling to the interiors. Each rafter had a collar stiffened by braces which were passed through the collar and stopped on the underside. If you see, this is the collar tie, see this small part in the picture, this was introduced in this particular type of construction. The rafter rested on the outer portion of the wall and this left an unsightly ledge on the inside. There is a triangle thus formed inside and that originates the hammer-beam. The hammer-beam is another type of roof, wooden roof i.e the hammer beam roofs. Hammer beam roof is actually an extension of the previous techniques of construction, evolved around the end of the 14th century, almost toward the beginning of the 15th century. Its a much decorative open timber roof which runs in the typical English gothic architecture churches and it is actually one of the most spectacular endeavour of the English Medieval carpenter. It is considered to be the most amazing and spectacular construction technique of an English gothic touch, let alone the timber roof. It is actually considered a masterpiece of construction as a whole in the English Gothic architecture. If you see in this particular hammer beam roof, you see this is the hammer beam and hammer beam is a lengthened

sole piece on which the projecting part is supported. This is the projecting part and it is supported on this hammer beam. This forms a major part of this construction, that is why it's named after that and it is called a hammer beam roof. It consists of a series of trusses repeated at intervals, it's not as a single truss like in the previous construction. You can see multiple trusses repeated in intervals and supported on the median poles and rafters. The basic objective is to transmit the weight and thrust of the roof as low down as possible of the supporting wall, that is the hammer beam construction. Moving on, the next timber roof is the collar based roof. It is almost pretty similar. You can see how it evolved from the beginning and how each and every small stage lead to the collar braced roof, which is one of the most advanced form of timber roof construction in the churches. So, it's basically a simplification of the hammer beam form. If you see, hammer beam form, you have these kind of arches which actually made these kind of projections in the roof. If you see the collar beam roof, those were simplified and were made into much simpler looking forms and it gave more space and intensity to the roof. Once you omit the collar of the collar beam, it is called the arch braced roof. The curved braces serve to strengthen the trusses while they transmit the weight lower down the wall, that actually makes the roof all the more steady.

Moving on, to the final type of Timber roof, the Aisle roof. The Aisle roof is a very simple type of roof and it's a very simple kind of roof, simple character roof. It mainly began as a continuation of the Nave and rafters. The trusses were introduced in order to introduce purlins. If you take a look at this picture, this is the basic aisle roof. A lot of churches in Paris have such roofs. It is simple, straight and elegant in style. It gives a simpler interior finish.

French Gothic Architecture

Moving onto the French Gothic architecture - as I mentioned in the previous lecture, there are a lot of differences between the English gothic architecture and the French Gothic architecture. These two form the basis of the gothic architecture across Europe. On an architecture standpoint, France is divided into two parts by the river Loire. River Loire is one of the most important river of

France, the architecture of France equally divides itself into distinctive parts based on the River Loire. Based on geography, climate, architecture in France varied from north to south. As I said earlier, France had this excellent collection of stones. These building stones were extensively used in this particular French Gothic buildings and before the establishment of the Christian country of France, France was under the Hugh Capet who became the king of the French. So it was not called the country of France, he was called the king of the French and then the country became home to varied races, different types of people from different parts of the world and there were also a lot internal heated issues amongst each other that led to varied types of architecture to develop within France itself. This basically affected the Romanesque and the Gothic architecture in France. These variations depicted a tension within the country due to racial differences. In this presentation, you can see the basic French Gothic church. These are the basic parts of the French gothic church; tower, facade that has two towers that plays a major role in French gothic architecture, the Gable, Arcades that are a part of any Gothic church you see but a lot more in France, Rose window- a central circular window on the facade of a gothic church as in England that became a major part in French gothic architecture as well, niches pinnacles, archivolt and tympanums.

Before moving on to the basic architecture of French churches or a Cathedral, I would like to take you through few basic definitions that can actually help you while reading about Christian architecture. The first one is the - Gargoyle. This is nothing but a carved form of grotesque with a spout designed to convey water from the roof and away from the side of the building. This is nothing but a water disposal sprout that was created in most of the Gothic churches. I consider this as one of the most extraordinary modern architectural feature that was created because they understood that rainwater had to be taken off and in turn created an architectural feature that could spout out the water. That is Gargoyle. It is one of the most important features of a gothic church. The next is a Fleche. This is a steeple or a spire. If you take a look at Notre Dame, Notre Dame has one of the most important and famous fleche of Gothic architecture which you will see later. This emerges from the ridge of a roof. Then comes the Corinthian capital. This is

one of the most ornate of the orders and it is characterized by slender fluted columns and elaborate capitals decorated with acanthus leaves and scrolls. This has extremely elaborate works when compared to other columns and there are many variations of Corinthian orders that you can see in the later architecture of churches.

Moving on, the first church we will be seeing today is the Notre Dame, Paris. The Notre Dame, Paris or simply Notre Dame is one of the most exquisite and most famous churches in the world, let alone in Paris. This is one of the fabulous masterpieces of Gothic architecture not only in France but also in the world. It is considered to be the extreme Gothic cathedral. The Notre Dame in Paris is not only famous for its extraordinary architecture but it also has a lot of Catholic originals that were actually saved within this particular church that makes this one of the most famous and visited churches in the world. This is the basic plan of Notre Dame, Paris. Notre Dame was constructed between 1163 - 1235, a period of 800 to 900 years old. It took almost 180 - 200 years to completely construct this church. Notre Dame, Paris is translated as 'for our lady of Paris'. As I said earlier, it is one of the oldest French Gothic cathedral. It was begun by Bishop Maurice de Sully. Basically, it is not yet established if it was accidental or if it was intentional but Notre Dame had an axial plan which makes it different from other Gothic churches of various other origins. Another thing about Notre Dame; it is one of the first churches in France that used flying buttresses. Flying buttresses weren't intentionally a part of this particular church but came into construction later when thinner walls were higher and longer. That gave a lot of stress marks on this particular church and gave rise to the use of flying buttresses in order to support those walls. That's when flying buttresses became much more famous, that's when flying buttresses of this particular church came into existence. So, its located in one of the little islands in the middle of the river Seine. Two thousand years ago, this particular part was the only little island that encompassed Paris. Paris grew, Paris expanded but this particular island remained the most visited part of Paris as Notre Dame still remains there. The thing about Notre Dame is, it has a plaque that actually marks the centre of the city of Paris. The city Paris is actually measured from that particular plaque which is in Notre Dame.

Another unbelievable fact of this beautiful building was; it was in such a bad state in the 19th Century such that people wanted it demolished. Basically, the great writer, Victor Hugo helped save his famous book 'The Hunchback of Notre Dame'. The Hunchback of Notre Dame refers to the Gargoyle of Notre Dame which actually is one of the most prominent feature of this Cathedral. Outside this cathedral, you will see a lot of Gargoyle's placed like this. Looking back at the time when I explained about Gurgoyles, the picture beside the description is how a gargoyle looks like. This is particularly the gurgoyles of the Notre Dame and this is the hunchback of Notre Dame. If you take a look, the whole church is equipped with this particular feature all around the church. Previously, it was coloured and later on, the color faded and now it is colourless. This particular church has wide nave and double naves. Transepts are small projections, practically in line with aisles and the notable chevet, the earliest of its kind. Chevet is nothing but semi circular ending of the apse. Double aisles and surrounding chapels were existing between the buttresses. The facade was impressive yet somber and so are the interiors. The interior is a little somber but extremely impressive and has Nave arcade with cylindrical columns. Corinthian capitals carrying the pointed arches and pointed arches as I mentioned earlier, is one of the most important aspects to a Gothic church, Notre Dame was no different, has extremely pointed arches that eventually became an important part of the Notre Dame interiors. It has shaft to support the ribs of the lofty sexpartite vaulting. Sexpartite vaulting is another important part of a Gothic church and as in the Notre Dame palace if you see, this is extensively used. The sexpartite vaulting of Notre Dame, Paris is one of the most famous of sorts in Gothic architecture.

Furthermore, you have a Triforium - a high Triforium which is binded on an upper Triforium with circular windows which were removed in order to provide taller clerestory windows. Triforium is nothing but a blind storey space beneath the sloping roof over the aisle vault and enclosed on the Nave side by a series of arches. The circular clear storey windows next to the crossing were reinstated by the Viollet-le-Duc. This eventually became one of the most important aspects to Notre Dame, Paris. The clear storey windows are much elaborate than the

interiors that gives the Nave a life of its own. This is the facade of the Notre Dame, Paris. This is the Southern tower and this is one Gallery and this is the rose window that plays a major part in the Gothic cathedral. This is the King's gallery, if you see, a lot of statues, a series of statues were intrinsically carved in this particular area. It is one of the most outstanding feature of French gothic churches also Notre Dame. This is the portal of the last judgement, the portal in the middle is the portal to the virgin and the one of the right is the portal to Saint Anne.

The wide spreading western facade is one of the finest architectural characteristic facade in France. This particular facade is discussed forever. This became a base from which a lot of other churches emulated and built later. The plan as well as the facade of this particular cathedral became so famous that many churches got inspired from this particular cathedral's plan and facade. Three deeply recessed portals adorn the exterior facade of this particular church. The central doorway is divided by a pillar in the centre which is a statue of Christ, as you can see in the image. This particular feature, this central part is one of the most fabulous extensively carved statue of Christ as you can see. Above and across stretches a band of statues of Kings of France. These are all the statues of the Kings of France, that is why this is called the King's Gallery. The central wheel window is of great beauty and 42 feet in diameter. This particular rose window is one of the most famous rose windows in the world. If you ask an example of a Rose window, the first example that would be given to you is the Rose window in Notre Dame in Paris because it is 42 feet in diameter and is of great beauty and is intrinsically carved like no other ones. It is flanked by high couple windows, two western towers and high pointed louvered openings. These are the two western towers in the picture.

Amiens Cathedral

The Amiens Cathedral in France is the next cathedral we will be discussing today, it is also called Notre Dame Amiens. This is again dedicated to the lady of Amiens. This is another very important French gothic church. This had extremely different plans and interiors from the other churches. This was constructed between 1220 -

28 by Robert D Luzarches and it is a typical French Cathedral, 450ft long and 150 ft wide. It transepts only widely projecting and sweeping chevet of seven. A Chevet of this particular church is extremely famous because of its design. If you see, this is a chevet. It is an apsidal eastern termination of a church choir typically having a surrounding ambulatory that opens onto a number of radiating apses or chapels. There are a lot of radiating apses here and this is a particular example of a Chevet. Chevet of this particular church is widely discussed because of its extremely intricate architecture. The noble interiors, spacious in its soaring height, seems to enclose but to included the sky above. Rather than enclose, it seems to hold the sky within. It's so tall and the clerestory windows are so many that it almost feels like it includes the sky above the architecture and that's like the most fabulous feature of this particular church. The stone wall is 140 ft in height and its upheld by cylindrical columns with four smaller attached columns. The great glory of this cathedral, the Bible of the Amiens is the wonder of its carved woodwork. This has extensively carved woodwork that looks like branches of living tree soaring high. You can see in the picture that its carved well and that it's an extensively brilliantly made roof in this particular church and becomes one major part of this Cathedral. Again, the western facade of this cathedral, one of the noblest amongst the wonderful facades in France. France had amazing architecture like Notre Dame, Paris and Amiens Cathedral. These two cathedrals have extensively worked out its western facade which is like the face of France and even now French tourism rests upon these two cathedrals as much as that of the Eiffel tower that later came into the picture. A series of statues resemble the Notre Dame. As I mentioned earlier, Notre Dame also had a statue of Christ in the centre and even this does. The series of statues in this particular cathedral resembled the Notre Dame a lot but this is different in its own way and landmarked in its own way. The central western doors are separated by one of the noblest sculptured image in the world of a Beau Dieu d'Amiens and this is particularly famous across the globe and its 180 ft in height, the slender timber flesh of this particular church. This is the slender timber of this particular cathedral in France and this is very famous in France.