

Contemporary Architecture and Design
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Lecture – 11
Phases of Modern Architecture- Chicago School

A welcome students to the online NPTEL course Contemporary Architecture and Design. Till now we have discussed, we started with the modern phase 1, and we started with the before modern what happened and what was the scenario of modern movements, which was industrial revolution, and in the previous class we talked about Bauhaus and Bauhaus architectural movement and which also was in fine arts, and then almost the De Stijl movement which was started from the fine arts movement and also there are some examples of architecture and industrial design as well.

So, Bauhaus was as we have discussed is one of the movement which supported went for the function first, and then form will evolve after that, but in De Stijl movement we have seen there were some particular aesthetic style was set for example, primary colors, pure geometry and rectilinear form was there. Now we will today discuss another school of thought which evolved from the same time, and which also supported functionalism before form an aesthetics.

But this style Chicago style is evolved in Chicago which is in America, where as the Bauhaus style evolved in Europe.

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Modernism

- Going beyond architecture: Asymmetry in building
- Breaking the nature into simplistic patterns and forms (abstraction): Organic architecture; abstract art
- Purity in design: Purity of material (Brutalism); purity of Form (basic geometry); purity of colour (white architecture; primary colours in fine-arts)
- New Materials: steel, glass, concrete

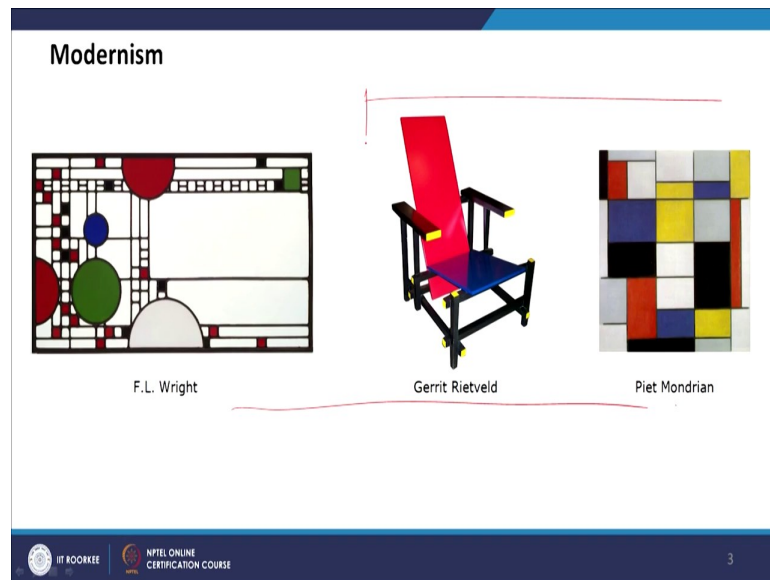
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Now, in modernism we have seen that asymmetry of the building was one of the most primary style which followed... which got followed in the various modern style ah. For example, Bauhaus, but in Chicago we will not see much of the asymmetry as we have discussed in the phase one of modernism lot of different movements evolved which kind of opposed each other.

And they are not; there are lot of dissimilarity in the thought process and dissimilarity in the visual style. Though the... both of this Chicago and Bauhaus style was in the same in the favor of the function first, but Chicago style will be a visually quite different from the Bauhaus style. And we have seen some simplistic abstract pattern and form which will we will also see in Chicago... as we will discuss later. And then purity of design like purity of material this was there in the high modern, but in Chicago we will see a little bit of ornamentation and cladding and other works which we will see.

Now, in modern which we have seen this kind of thing was there mostly this is from the Bauhaus and De Stijl movement.

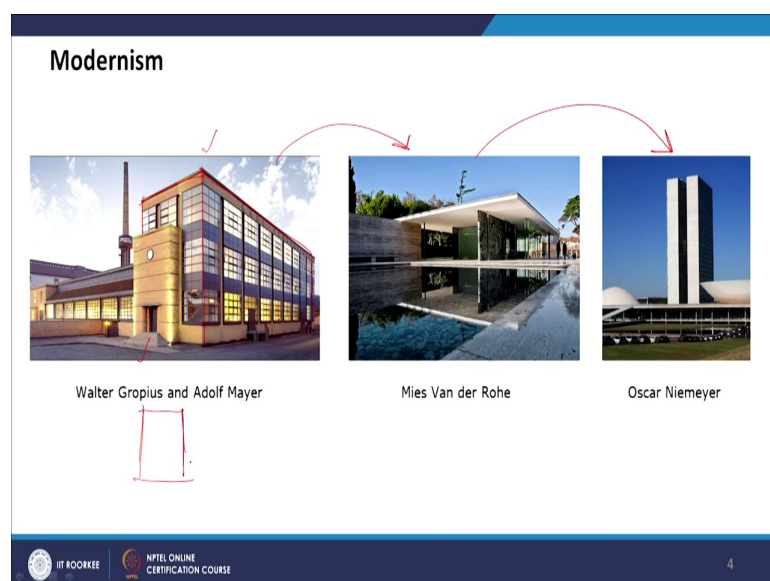
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So, this is the visual palette of Bauhaus, though Chicago movement was in the similar thought process, but their visual style was very different from the Bauhaus.

Now, when we discuss this is the Bauhaus style, which is absolutely cuboid why we are discussing Bauhaus right now, because in Chicago this is... it is very important to understand, the differences of Chicago and Bauhaus style and their similarities because they have the similar ideology, but their visual is very different.

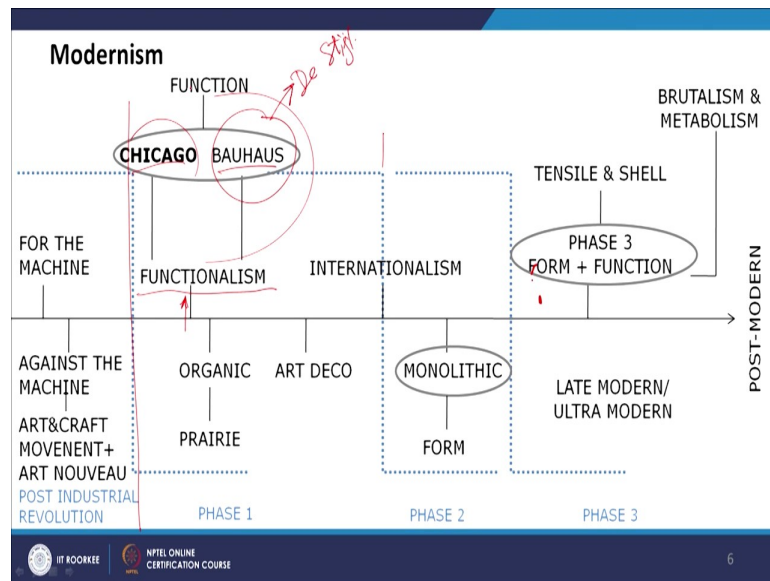
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So, in the Bauhaus we have this Fagus boot factory which gradually translating in the visual style of the later phases of modernism.

But in Chicago which we also see in the similar thought process, but the visual was very different. But in the Chicago you will also see a box and cuboidal skyscrapers, but their visual treatment was very different. Now this minimalist style we have discussed in the modernism.

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Now, if we look at the time frame of modernism here from here the first phase one started. And here we will see in the first in the beginning of the phase 1 we have the functionalism. In functionalism both Bauhaus and Chicago belongs to the functionalism.

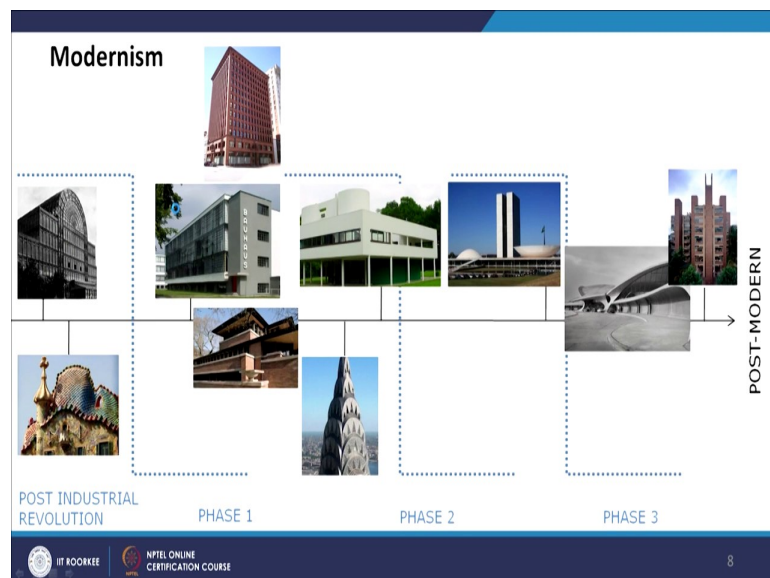
So, they talked about the function first and then form, but in Bauhaus which was in European style, and Chicago which was in American style. There were the visual treatment was different. Bauhaus was more closely linked with De Stijl movement, De Stijl movement and, but Chicago visual style is different. And but both constitutes the functionalism movement of architecture which talks about function first.

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Now, if we look at this Bauhaus movement this is a De Stijl's art.

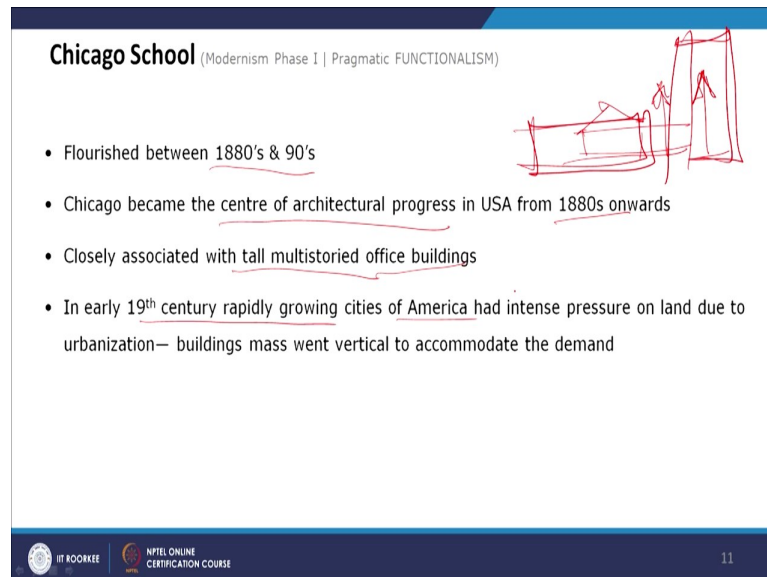
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And now this was Bauhaus and this is Chicago. So, if you look at the similarities they both are more cuboidal in nature, where is in if you look at the previous movements which was art nouveau; nouveau and art and craft movement this is the example of art nouveau. There are lot of curvilinear patterns, whiplash patterns those were the style of art nouveau in art and craft movement also there were high on ornamentation, but still art and crafts movement had the traditional look.

Now, in the for the machine movement it was absolutely pure geometric style. Now in Chicago also we will see that similar cuboidal structure was there, but there was a visual treatment and aesthetic treatment was different.

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Chicago School (Modernism Phase I | Pragmatic FUNCTIONALISM)

- Flourished between 1880's & 90's
- Chicago became the centre of architectural progress in USA from 1880s onwards
- Closely associated with tall multistoried office buildings
- In early 19th century rapidly growing cities of America had intense pressure on land due to urbanization— buildings mass went vertical to accommodate the demand

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Now, talking about Chicago school and its background, it is modernist phase one as same as the Bauhaus and it is also pragmatic functionalism which is also Bauhaus was also part of it.

Now, it flourished between 1880's to 1890's which is very early stage of modernist movement. So, we will see lot of influence of art nouveau as well in the Chicago, which was not there in Bauhaus. If you look at Bauhaus it is very opposite to art nouveau, but Chicago still has some influence of art nouveau as well as Bauhaus in philosophy and art nouveau from the aesthetics, but definitely not art nouveau it is much more simplified much more geometric.

And then also it influence... Chicago school influenced another school of thought which is prairie and organic. Now so, Chicago became the centre of this architectural progress in USA and they evolved a visual style from 1880's onwards. So, closely associated with the tall office building structure as we know that in after industrial revolution lot of influx from village to city happened. And this city... cities required lot of office buildings for different purposes and this kind of influx in the, from the village to city generated a need to go high rise.

Before these style before modern, the buildings were low rise, and they had pitched roofs and that kind of visual style was there. So, it was more of a horizontal spread of a building, and it could not go high rise because of the technology constraints as well. So now, technology started to develop, and many of the Chicago style movement buildings we will see they are frame structures with steel.

So, the usage of steel gave possibility to the constructor and designers to go high, and create high rise skyscrapers, which we see in Chicago and New York, now with that, but the visual style was very different before. So, there was a drastic change from the visual style of the building. So, earlier the building was more horizontal in nature, right now buildings are going up because of also one was the possibility of the technological advancement, and also the need was there because a lot of people started coming to the city... city core because of the industrial revolution.

Now, in early 19th century we see this rapidly growing cities in America as well as also in Europe. So, America became the centre and mainly Chicago became the center of these kind of skyscrapers which started coming and they had a particular visual style to treat on the façade.

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Chicago School (Modernism Phase I | Pragmatic FUNCTIONALISM)

Architects & Their Works

- H.H. Richardson - Marshall Field Store (1885-'87)
- Burnham and Root - Monadnock Building (1889-'91)
- Daniel Burnham and Company - Reliance Building, (1894-'95)
- Holabird and Roche - Marquette Building (1893-'94); 325, West Jackson Boulevard Building (1904)
- Adler and Sullivan - Auditorium Building (1887-'89); Walker Warehouse (1888-'89); Carson-Pirie-Scott Store (1899-1904)
- Henry Louis Sullivan—Guaranty (Prudential) Building (1895)

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Now, these are some examples of architects work who are in the Chicago school of thought Chicago styles, we see few architects here and we will discuss their architecture style, but one of the pioneering architect was Henry Louis Sullivan and his architecture

style was one of the famous styles of Chicago school of art and style. And of course, Holabird and Roches work and other architects works there.

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Chicago School (Modernism Phase I | Pragmatic FUNCTIONALISM)

- HERNRY HOBSON RICHARDSON
- "Last Great Traditional Architect"—founded the path of American modernism. He was the precursor of Chicago School of Thought.

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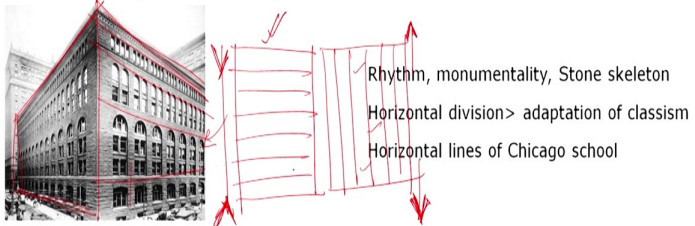
Now, first Henry Hobson Richardson was the last architect... was called last great traditional architect, and why he was called that because he was on the transition of the traditional architecture style to the modernist architecture style in America, and in American modernism. So, he transferred this traditional style into a particular new modern aesthetics which later in the Chicago school of thought became the iconic style of architecture.

So, he was the precursor of Chicago school of thought. So, he was just before the Chicago school of thought, but his architecture style influences, the Chicago style of architecture a lot. Now if we look at the building. So, it has a rhythm and like a traditional building though it is confined within a box and a straight façade, if you look at, but the treatment of the façade was transferred from the is taken from the traditional architecture style, and there was a rhythm, rhyme and this monumental stone skeleton was there.

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Chicago School (Modernism Phase I | Pragmatic FUNCTIONALISM)

- HERNRY HOBSON RICHARDSON
- "Last Great Traditional Architect"—founded the path of American modernism. He was the precursor of Chicago School of Thought



Marshall Field Store, Chicago (1885-87, demolished-1930)

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And if you look at the proportion and this does not come within the skyscrapers scale, but still it has it went higher on the on the floor. But this is the way if we... if he have treated. So, if you look at so, they has a traditional style into it now we will decipher what was the traditional style and how they have translated the traditional style into the Chicago school of thought.

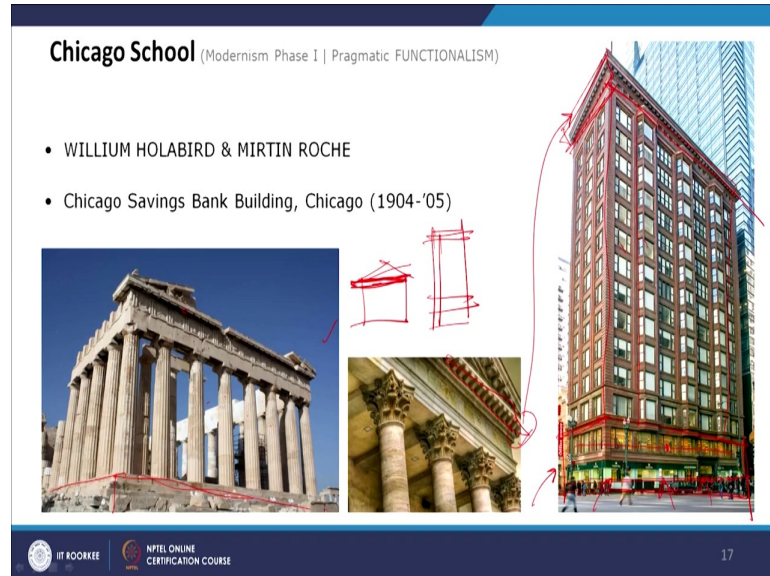
If you look carefully, so, there are lot of horizontal lines, you can see in the design treatment. Now as you have you know that if in the same area if you divide one area with horizontal line, and another area with vertical line, this kind of composition will look shorter, it will look shorter in length. So, there will be a push in the length, and this kind of composition will look taller in length.

Now, why he have treated this and divided this into lot of horizontal lines. Because that time earlier as we were discussing the buildings were more horizontally spread. Now because of the need and the possibility of the construction technique the building went higher. During that time, this building was kind of a on the height was more in the during that time.

So, he wanted to divide the building in horizontal line so, that it looks shorter. Because people was not accustomed with the skyscrapers and that scale of building. So, there was a need to make the building look shorter because of the familiarity and there, the to

match the mental model of the users. Now we will discuss this kind of treatment later with the compare with the Chicago style's building.

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Now, William Holabird was one of the famous architect of Chicago school and William Holabird and Martin Roche together designed Chicago's savings bank, which was one of the key design comes under the Chicago style. Now if we look at the building, now we will see again it breaks the horizontal breaks the building into the horizontal part. So, we will see lot of horizontal parts here.

Now, while breaking the horizontal part, which also we have seen in the previous design; here in this building by Henry Hobson, which we will see here as well. So, look at the treatment so, here so, this will be the human's eye point of view. So, here from here when will they see, they will see this part, and then this part. So, here in this part there were, there were 2 lines coming and then we will see another treatment over here, and lot of this lines also continues and here.

But now while taking the inspiration of breaking this into 3 different parts; they have taken an inspiration from traditional Greek architecture. Now we were discuss... when we are discussing that in modernist movement modern did not acknowledge the previous styles of architecture including from classical to others. But there will be some movements where it did for example, Chicago school of architecture style, they did

taking inspiration from modern school and the previous architecture style which is classical Greek architecture.

Now, but in the later phases of modernism we will not see this influence passing on. So, also we have seen in the art nouveau style which is pre modern they have taken inspiration from baroque and rococo style, but these will later fade away and the high modern style, in the late modernist movement will have... will have a pure abstraction with without any historic connotation or historic connection with a previous architectural movement.

Now, here if we look at so, the first this part becomes the stylobate or the base of a something like Greek architecture. Now here if you look this part comes out, and these becomes the column of the Greek architecture. And so, you will see the solid this parts are solid, and this parts which goes back in the massing acts as a void. So, there is a solid void of this treatment creates an metaphorical representation of the column. And here you will see the base of the column, and the shaft and the cornice of the column is treated in a little different way.

Now, after that you will see the capital of the column is treated in a different way. Now you will also see the architrave the treatment of something which got inspiration from architrave, frieze and the cornice. So, if you look at the cornice, now I have the photograph of the Greek Parthenon another building of the Greek style. So, here we will see this style stylobate, but definitely if you look at the Parthenon's proportion they could not maintain the Parthenon's proportion, because of the functional requirement they had to go high and that was a functional requirement.

We will come to the functional, how these buildings give emphasis to the function in the later side. But now if we look at the proportion this buildings were much more taller, and their proportion was definitely skewed that is why they had to break it into the 3 different phases. But still we will see the ornamentation coming from the Greek architecture.

So, here if we look at the cornice treatment so, that is given here. And the cornices element we will see something which was been translated into the modernist style. Now columns we will see the solid void this rhythm maintained in the columns void ,solid and this rhythm is maintained. And the stylobate or the base is treated in a different way. Now these buildings are generally the New York and Chicago's office buildings so, the


ground floor will be the shops ground and the first floor the lower floor will be the shops so that people can access this in easily. And the then the rest of the floor will be the office building so, their treatment is different.

And then this will be the services water tanks and other services lift machine room and other elements will be there so, this their treatment was different. So, this from the outside each and every... for each and every function they have some different treatments. So, it communicates with the people. So, design semantics was more communicative to the people and then the through the design style, they are communicating the functions were different as well.

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Chicago School (Modernism Phase I | Pragmatic FUNCTIONALISM)

- Chicago Window
- Typical style of Chicago School of thought
- Fixed Central Panel
- Smaller Double-hung sash window on the both side of the fixed central panel
- Some times converted into bay window



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Now, the material if we look at so, this was the steel frame structure, but there was a cladding of the terracotta cladding. So, it does not talk about the true material would exposed which was there in the Bauhaus style. Bauhaus style what was the material of construction they tried to expose that and true... and the façade treatment if you look at the Bauhaus façade treatment was absolutely the way materials own texture and color was revealed.

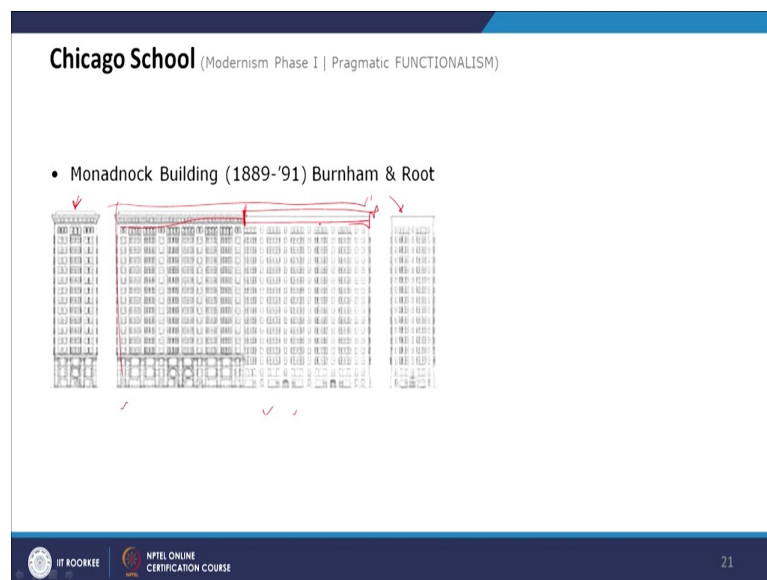
So, terracotta cladding when we add cladding so, the original material got cladded with a different material. So, the terracotta cladding is not it is the building is not made definitely not made by terracotta steel frame structure, but we do not see the steel frame

structure because it is cladded with the terracotta. Now with the large, larger shop is the ground floor as we have discussed is different façade treatment as well.

Now, another stylistic feature of Chicago style was the Chicago window. Now the Chicago window you will see the similar kind of window which is here in this building will also be followed in the other buildings. So, let us talk about what is the Chicago style of window which most of the Chicago style building have something like this, but with a little variation.

So, it is a typical Chicago style window will have a fixed central frame, central panel and the smaller double hung sash window will be on the both the sides. So, it can be you can put it up to close the window and then put down so, that this part will be void. So, this is done on a flat surface, but if in this building of William Holabird you will see this flat Chicago window over there, but sometimes it can also become a bay window. So, side part of this window is in a different angle and it becomes a bay window. So, both are both can be classified as the Chicago window, sometimes it might not have a central part it can be a double hung sash window in the in totality.

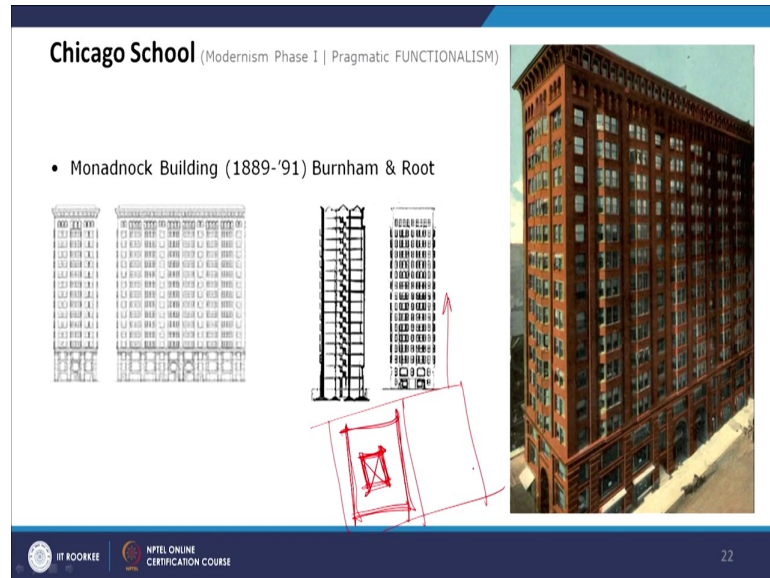
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Now, another example of this Chicago style school of architecture was Monadnock by Burnham and Root. So, you will also see if you look at the style, if this is side elevation and the front elevation. Front elevation also has the similar kind of treatment there was a cornice, but this cornice stops here because... and they have not treated till this part.

Because this building was developed in many phases and there was many iterations happened on the building. Now, if you look at the functionality why this support the functionalism?

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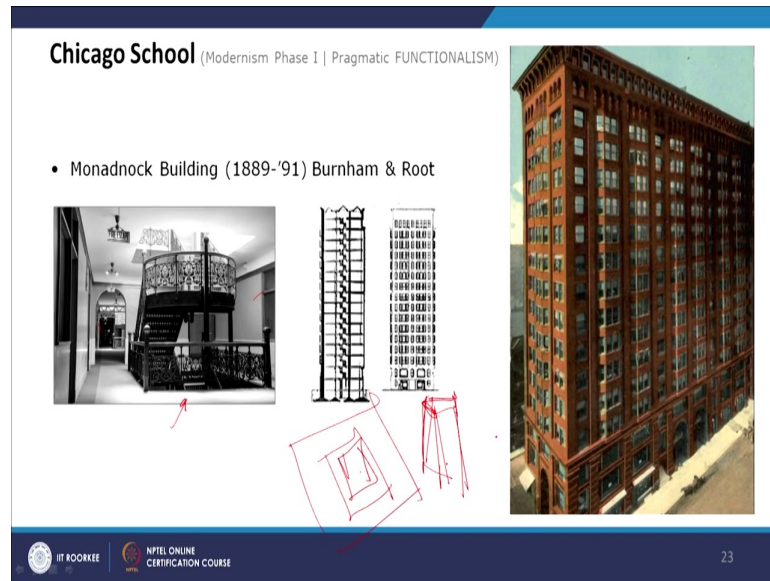


That was the main part over here, because this Chicago style was a functional building one is this supported the cause the need of the of the people that it has to go high. And so, it went high because this in a city.

Now, while designing that an office building, they designed the service core in the in the middle. And all the services are there in the middle and then free office spaces are surrounded by that. So, this arrangement of design is a very functional arrangement for the office. And as this in a city they were allotted rectangular and square plots, the building's base was absolutely rectangle. And so, this from outside this is a very functional cuboid building. Because the service floor was there, service core was there in between and then all the served spaces are outside... around the service core ah.

So, this kind of servant and served concept definitely Chicago did not give the servant and served concepts, but later we will see in the Metabolist architectural style, we will see the servant and served concept and then they will design the service core in the centre and the served space will be around it. So, that becomes the very functional floor plan.

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Now, we will see the service core of the Monadnock building which the stair case and all the office spaces are around it.

So, there is a stair case, and then there is a corridor and the office floors are around it. So, if we look at the form which evolved from the function is absolute cuboid, and because it was a cuboid and they wanted to then they felt the need of treating it from the outside. So, all this treatments are happening on the façade.


So, there is no treatment in the form and solid and void of the actual form of the... of the building. So, they had the building which was absolutely driven from function. But from outside they had to decorate the building they wanted to decorate the building to create the façade more interesting. So, form... the form followed the functions so, function came first.

Now, in Monadnock building we will see till this part the same treatment is there the cornice is there, again the columns mimicry of the columns was there in the building.

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Chicago School (Modernism Phase I | Pragmatic FUNCTIONALISM)

- Monadnock Building (1889-'91) Burnham & Root



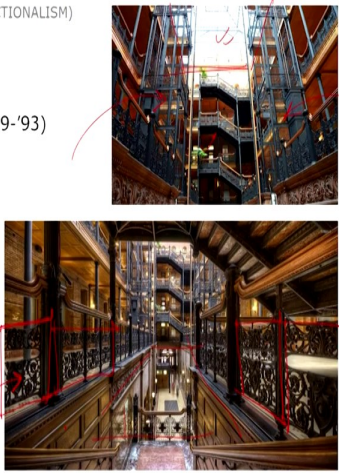
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And there is a stone cladded building, granite stone cladded building, again we will see the cladding which hides the actual true style of true... true material of the construction material and again, we will see something like the Chicago style of window which will which is which was predominantly visible in the Chicago style. So, here the column ah the column cornice and the solid and void of the column and the cornice is clearly visible.

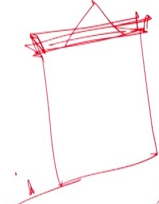
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Chicago School (Modernism Phase I | Pragmatic FUNCTIONALISM)

- Bradbury Building, Los Angeles, California (1889-'93)
George Herbert Wyman



Skylight
Courtyard
Hydraulic-lift
Open Iron Staircase
> Layout of a contemporary office building



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Now, there is a Bradbury building which is in Los Angeles California, was from Chicago it also spreaded in the other part of the USA. So, this again we will see here the service core the photograph of the service core is there service core on top of this... this is a skylight. From outside this skylights part will be so, if you look at the skylights, there will be the cornice, where they have taken the Greek inspiration. So, from this from human's point of view, you will only see the cornice treatment... will not see this.

And if you look at the inside so, there is the service core we have seen we can see the stair cases and the atrium. But also if you look carefully there is a installation of hydraulic lift. So, these are the because these in this movement skyscrapers started coming, and then with the invention of new technology, they started installing the hydraulic lift, because it went... when it is going higher. So, it required the lift so, these are first, one of the first buildings which had lift in their... in the service core.

And also if you look carefully, the treatment over here are very different from the Bauhaus treatment. Bauhaus treatment if you... if you remember then in the Bauhaus school; school the railings and the handrails, and the balustrades were absolutely pure geometric and straight. But here if you look at there is... art nouveau style inspire art nouveau and art, and art and craft movement styles got have the inspiration over here.


So, you can see an ornamentation which has the connection with art nouveau and art and craft movement. Also in this installation over here, in art nouveau we have seen like this kind of ornamentation with the wrought iron work. So, art nouveau blended the new technology and with the ornate work.

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Chicago School (Modernism Phase I | Pragmatic FUNCTIONALISM)

- Bradbury Building, Los Angeles, California (1889-'93)
George Herbert Wyman

Skylight
Courtyard
Hydraulic-lift
Open Iron Staircase
> Layout of a contemporary office building



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Now, from outside this is the outside of the building this is not as high as the other Chicago school's skyscrapers. Again you will see the same ornamentation. So, base or a stylobate, and then we have the columns, and solid and void of the columns were there and the Chicago school building, Chicago windows are there. And then the different treatment on top of it which is the cornice, in the same kind of treatment we will see over here.

Now, another building is a Reliance building in Chicago by Daniel Burnham again.

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Chicago School (Modernism Phase I | Pragmatic FUNCTIONALISM)

- Reliance Building, Chicago(1894) Daniel Burnham



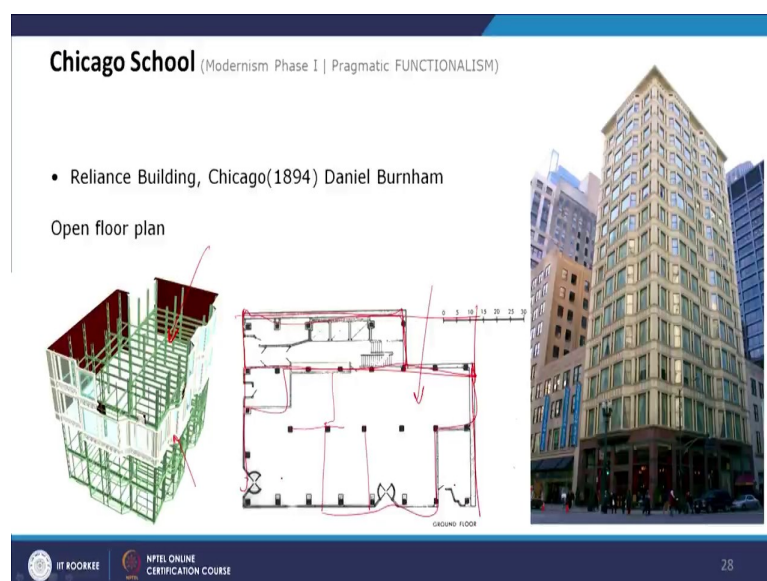
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So, here also you will see the same kind of treatment, this is granite cladded and this is the treatment is different over here. Again we will see this kind of treatment which gives a essence of a column over here and then the treatment of the cornice which also different. But if you look carefully and you can see how different this is in the treatment is from Bauhaus style.

Again this is a different variation of a Chicago school window, but you will see that similar pattern is followed over here as well. But in Bauhaus you have seen as which is absolutely a very clean, and which supports the minimalist style and their color palette is also different, the white pure white, pure black and the few accentuation with red, yellow and blue. But here the treatment is a very different, but you will see the inspiration taken from art nouveau and art and craft movement, but still you will see lot of geometric abstraction. So, that it can be so, it is a repetition of ornamentation.

But in art nouveau we have seen no repetition like Antoni Gaudi's and we Victor Horta's and very biomorphic curvilinear line. So, this is something in between art nouveau and then in Art Deco we will see some ornamentation which more geometric, but still there will ornamentation. So, so this is the kind of link between art nouveau ornamentation and later in the Art Deco.

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Now, if you look at the system within that so, this is a steel frame structure, from outside we do not see this steel structure because it is cladded from outside. But here this is the

first... one of the first this is the design style in Chicago movement... we see the free floor open floor plan in office spaces, which is also again derived from the functionality.

And here if you look at so, this also they did not mind breaking the symmetry of the form as well. So, here we see the service is pushed outside and we have we can see an open floor plan in the centre. So, that this can be modulated and in a different way, and the different places can be given to different office spaces. And then it can be divided with the modular office furniture within this.

In the next class we have we will continue with the Chicago school of design, and how the other school movement school of thought, and design movement got a inspiration from the Chicago school of architecture style.