Modern Indian Architecture
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Lecture: 13
The First Generation (1945 - 70) - Part 6

Hello students. We will continue our presentation of the first generation from 1945 to 1970, with the last and final Part 6 of this presentation.

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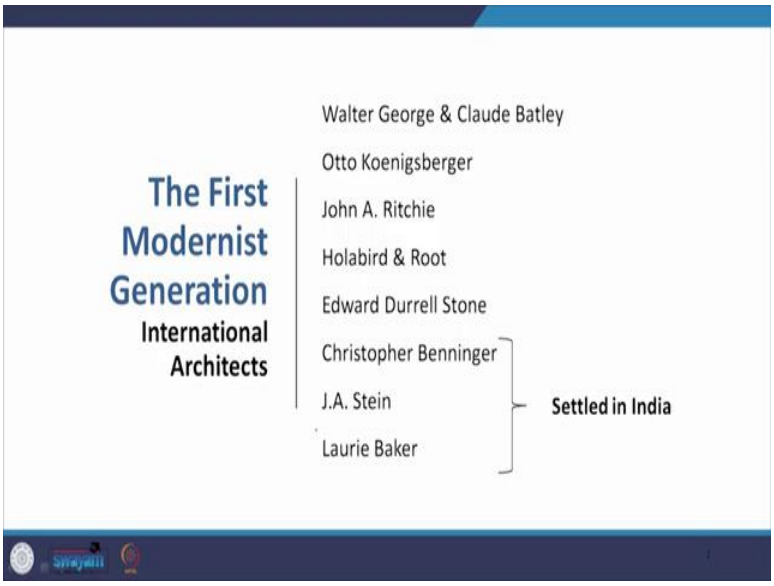

We have seen last time the series of international architects who had contributed to Indian architecture pre and post independence Walter George and Claude Batley. Then there was Otto Koenigsberger, John A Ritchie, Holabird and Root, Edward Durell Stone and then architects who, international architects who came and settled in India for their lifetime, Christopher Benninger, Stein and Laurie Baker.

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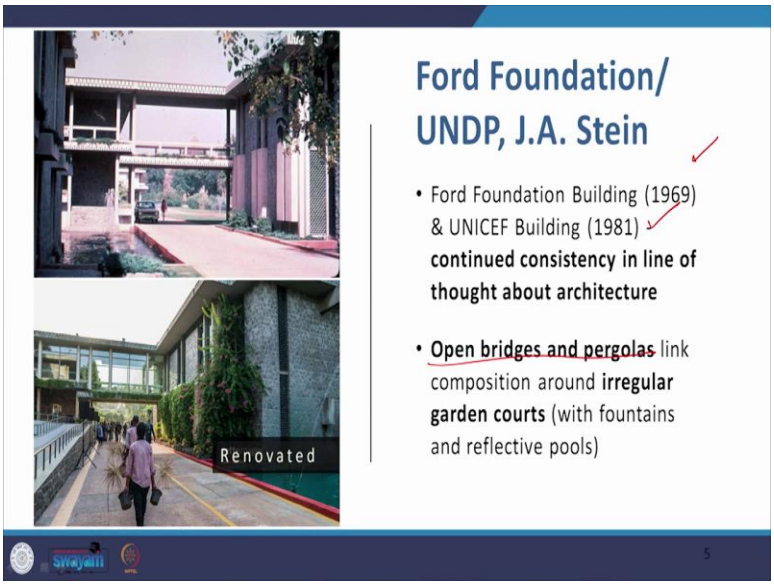

Now these are Modernist Buildings we saw last time modified for Indian climatic conditions, the US embassy and the building by Holabird and Root the TATA center. So, these are modernist buildings modified for Indian conditions. Then we would also seen that the most prominent Indian architects who were carrying forward modernism in India, were strongly influenced by the Bauhaus rationalist ideology.

But other ideas also got added, which are both homegrown and imported, for example, that of Frank Lloyd Wright, and his impact is seen in the works of architects like Gira Sarabhai, Nari Gandhi and Joseph Allen Stein.

Now coming now, back to Stein's work with which we attended last time, we have the Ford Foundation, the UNDP building by Stein, the Ford Foundation in 1969. And the UNICEF building in 1981 continued, there was a continued consistency in the line of thought about architecture in the works of Stein, and it is very evident from the build forms of Stein, that these buildings were reflective of the organic architecture of Frank Lloyd Wright, rather than the clean cut rationalist expression of modernist architecture.

There is, for example, the use of open bridges and pergolas that link the composition around irregular garden courts and these garden courts fountains and reflective pools. So, the entire building is not only suited to the, it is completely wedded to the Indian climatic conditions, knowing that we have got a very hot summer and in Delhi, for example, the will a very harsh winter also, these buildings respond to this kind of climatic conditions.

And this is very important organic architectural concept that the building must respond to the local climate, the local topography, the local materials, and be a part of the landscape rather than, standing out as an isolated piece in the landscape.

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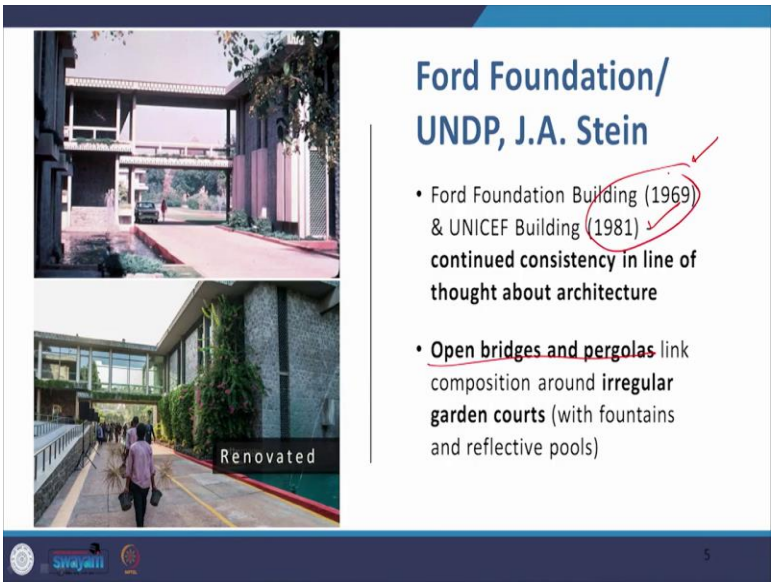

So, this regional context is what we see in his buildings. For example, we have the solid piers, and in between them, there are these horizontal floors with planters along the facade of the building and this, recall the architecture of Frank Lloyd Wright. For example, if you look at the Unity Temple. Just at the turn of the 20th century, designed by wright this Unity Temple has

very similar floating planes, like the Ford Foundation building, and we have got these planters associated with the building also.

So, we recall the American approach in an Indian context to the works of Stein. When we look at the form of the building, it is very different from we will be looking at other buildings and by Indian architecture in this time, which are brutalist buildings directly imitating the architecture of Corbusier in Chandigarh or there are buildings which are a direct reflection of the Bauhaus concept in India. So, these buildings by Stein are more a reflection of Frank Lloyd Wright's organic architecture.

Whereas the other buildings were following the more European rationalist ideology, his buildings they went on a different strand. And that is one thing that is always been in the back of my mind that why is it that Stein's buildings appear to be different than the other buildings made by other iconic Indian architects? What is it that make his buildings stand apart from them? And the reason I found is this now, there is buildings are speaking a different architectural language, there is modernism in his buildings and we will see that in the IIC. But there is also this identification with organic architecture.

The building, there is more serenity about the building the spaces are more what you might call more seren in India habitat Center, is a very classic example of that. And in this building for example, there is exposed stone glass and concrete, so not just glass and concrete is exposed, the stone is also been exposed along with these planters.

So, he is rather moving away from the Corbusier ideology. And please remember that during this time, Chandigarh already come up when he was doing these buildings, and at this time, a large number of Indian architects and I would rather see the iconic architects were more impacted by Chandigarh and the works of the Bauhaus school.

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So, we come to the India International Center in Lodhi estate in 1962. It is a combination of a social club, a cultural center, and a guesthouse where there is, the members are a cosmopolitan mix of academicians or academics professionals and artists. And the modernist feature that it has, it has an open plan with rectilinear massing which is definitely a modernist response.

But it also has Wright's connection between indoor-outdoor, so the spaces seem to flow from indoor to outdoor, which is very typically Wright's idea. So, but the rectilinear mass is also broken up with the curvilinear and hexagonal block, as you see here, in this aerial photograph of IIC or in this the bird's eye perspective of IIC.

So, the orthogonal massing is broken up by a curvilinear block and a hexagonal block moreover, the entire building is interspersed with intensive landscaping. So, the way the built form is organized allows him to provide landscaping within the buildings and around the building. So, landscaping dominates the built form.

And, in a sense, the seren landscape, the quietness of the greens is all around it. Now, this interplay between the garden and the building is also the architects respect that he is showing towards the 15th century Lodhi tombs nearby and the public gardens that align the site that align the site of the Lodi tombs. So, he is a paying due respect to the surrounding existing historical architecture.

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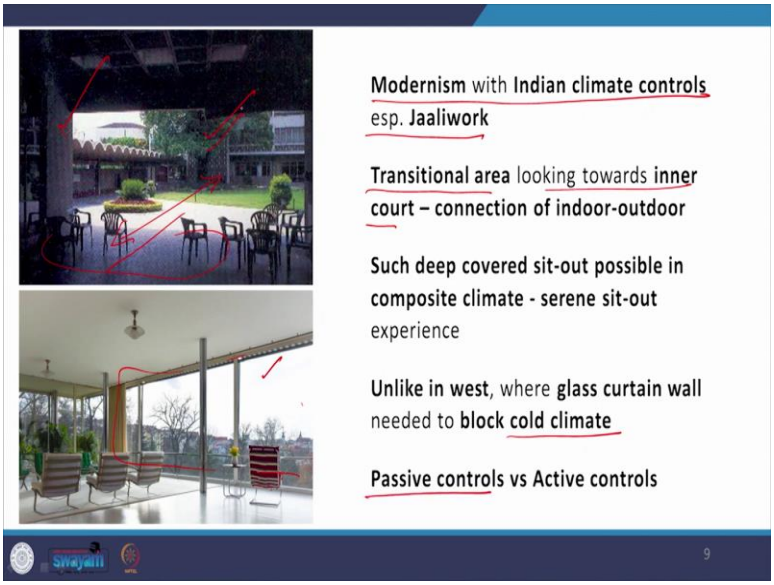

Now, this is modernism with Indian climate controls, for example, especially the Jaaliwork, but there is also the transitional area looking towards the inner court. So, for example, in this space that you see here, there is this very deep space open to the outside. So, there is this connection between the indoor and the outdoor.

So, when you want occupying this space, you sitting in this area, this very deep verandah, you are away from the glare of the sun, but you are connected with the outdoors. Now this is unlike the west where the glass curtain wall is needed. This is the Cuban Arthas by Mies van der Rohe.

So, what Mies did was because they want the same kind of indoor outdoor interaction, but it is not possible because of the harsh cold climate of Europe. So, the glass curtain wall is the barrier in between the indoor and the outdoor, but it is a complete glazed, it is completely glass so that the feeling is the indoor and outdoor are completely connected.

But this glass membrane is bit in between them, which is not required in Indian condition. So, this is the passive control versus the active control integral that because this would require central heating.

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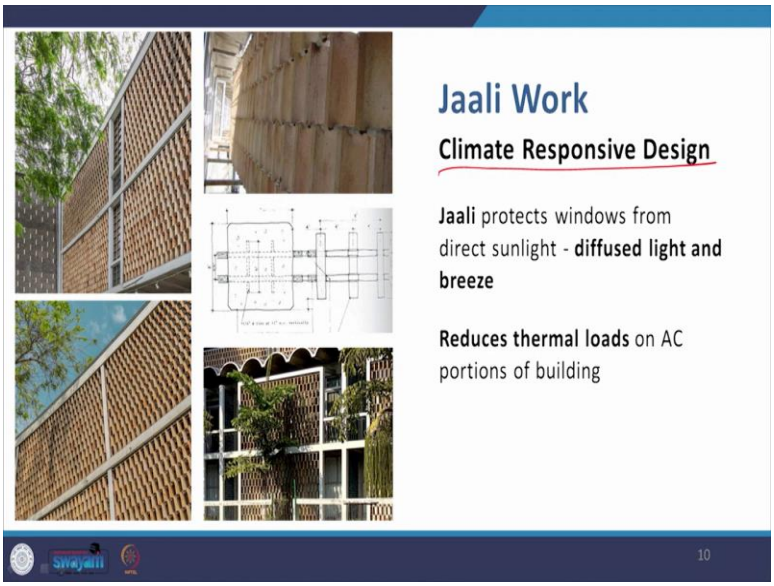

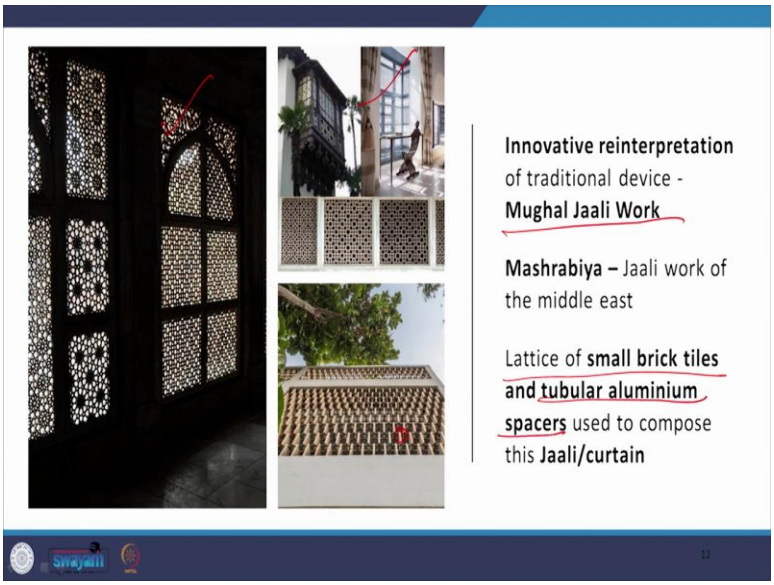

Now, Jaali work is a climate responsive design feature. The Jaali protects the windows from the direct sunlight and therefore diffused light and breeze enters the building the entire facade of IIC is dominated by this Jaali work and it also reduces thermal loads on the air conditioned portions of the building.

Now the design and aesthetics part of it. Not only is it a climate control device, it is also helping to tie the porous breakdown of the building behind the sweep of the Jaali work. So, when you see the building, though there are, for example, you have this through and through space underneath the building, and you have the building facade is completely united together by the sweep of the Jaali work. It also hides air conditioning pipes and other services. And it also prevents the direct view of the room interiors from the roads and the garden.

Now, this is an innovative interpretation of existing traditional Jaali work, for example, the Mughal Jaali work that you find here, or the Mashrabiya of Middle Eastern architecture, the Jaali work of the Mashrabiya the work of the Jaali work.

It was a climate response, but it is also a social response because the women of the household could stay on the inside, and they could look out while being in the privacy of their house, and people from outside could not look in , it helped in providing this aesthetic to the building. So, this Jaali work that was designed by Stein in IIC is a lattice of the small brick tile with this tubular aluminium spacers, which are the composition of this Jaali curtain.

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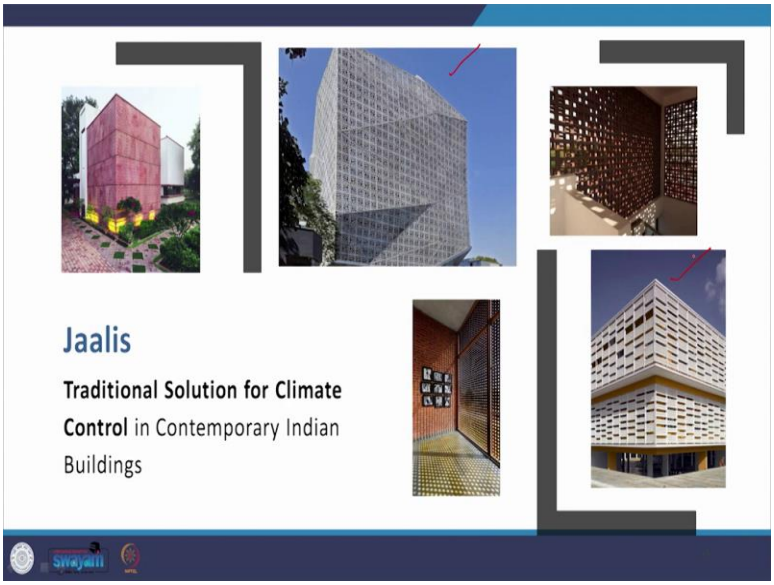

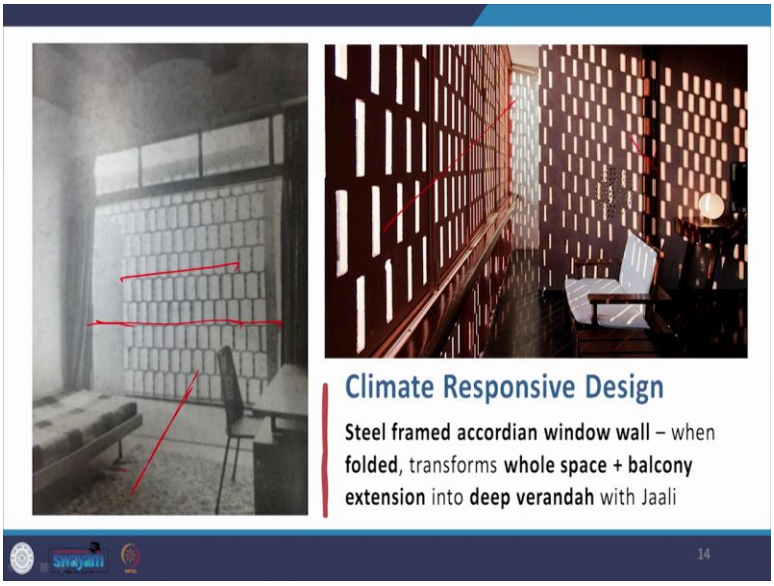

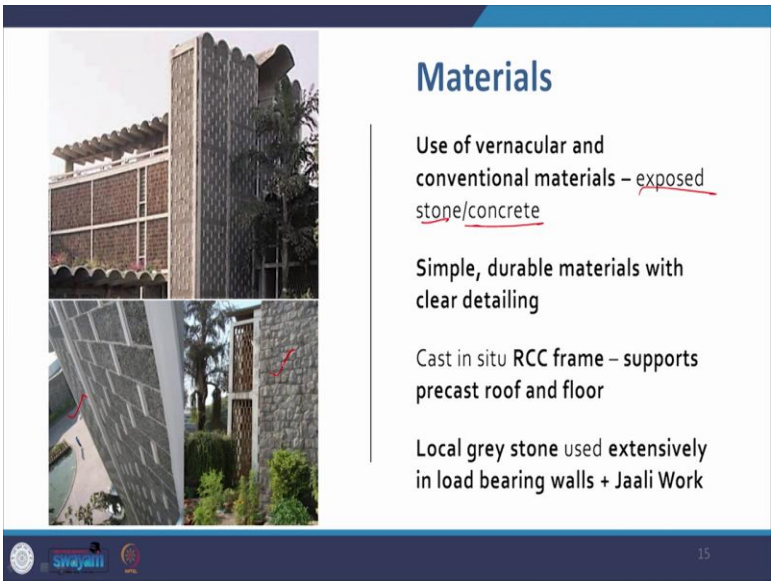

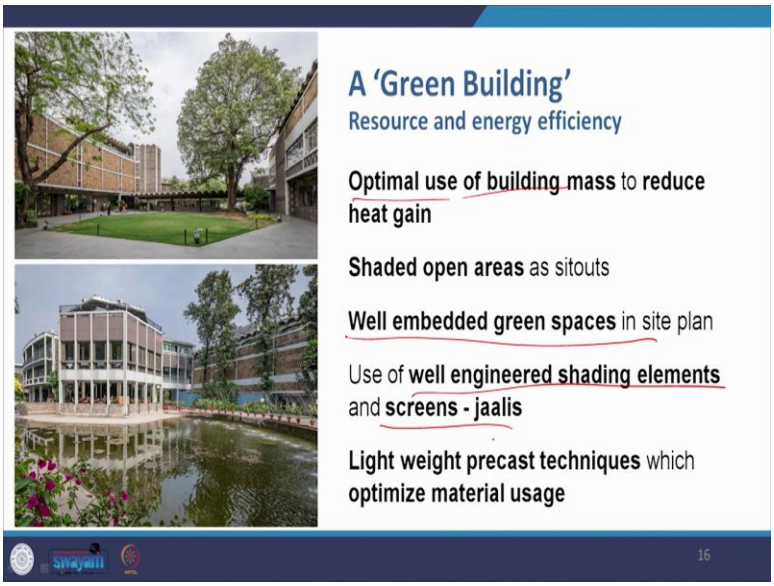

Now, the Jaali work has continued to be used in contemporary Indian architecture in by many architects like Sanjay Puri, in this building in Jaipur, and other architects like morphogenesis in the pearl Academy, so traditional solution for climate control even in contemporary Indian buildings, and these are modern buildings, but they are using a Jaali work as a climatic response.

And the amazing thing is that these are not just Jaalis that are designed empirically or on a hit and trial method, these are designed using high end software taking into consideration the angle of the sun and the solar part and thus they are designed very, very systematically and we will look at that when we come to the last part of this semester presentations, when we look at examples like the 70 screens by Sanjay Puri and the pearl Academy by morphogenesis.

Now, this climate responsive design has a very amazing and interesting solution. And that is each room in IIC has an accordion door or other you can say an accordion window wall and this accordion, this door or window wall opens up completely like an accordion and does the room and the balcony on the outside becomes a very deep verandah and with a Jaali in front and this is the view again. This is the Jaali in front the accordion door has been opened up and the room and balcony are working as a deep verandah.

Now materials; the use of vernacular and convention materials in IIC. So, this is exposed stone as well as concrete .Simple and durable materials are used with very clear detailing as you can see in these close shots of the building cost on site RCC frame has been used and this also supports precast roof and floor .There is a local gravestone that has been used here, which is extensively used in load bearing walls and in the Jaali work.

Now this, during that time the word the term ‘green building’ had not been coined. But these architects, by the way, they were responding to their local climatic conditions. And with the available resources, the available labor, were already designing a resource and energy efficient building, which is the foundation of a green building today.

So, they were not doing it by keeping the term green building in mind. They were doing it as a very direct and a practical response to what they had in terms of resources in terms of climatic conditions.

So, there is an optimal use of building mass to reduce the heat gain in this building. There are shaded open areas that are used as sitouts, there are these well embedded green spaces in the site plan as I showed you intensive green landscaping. The building has been planned on site in a way that green areas are flowing through from within and outside from in between the building and on all around it. There is the use of these well engineered shading elements and screens like the jaalis. And there is this use of lightweight precast technique to optimize material usage.

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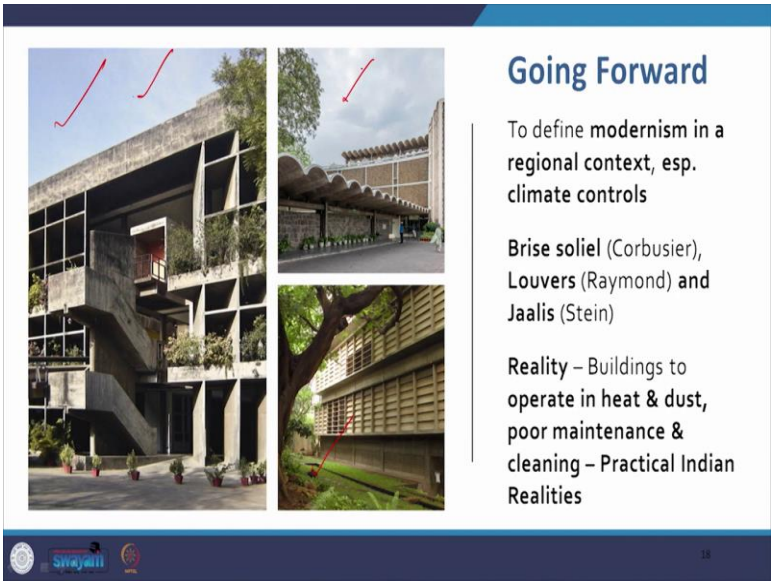

Now these are the interior shots of the IIC, the seminar room, this is another meeting room. The aditorium and the actual room, these kind of a lecture theatre here. So, these are the various interior spaces within the IIC.

Now going forward, we will be again looking at these ideas later that is to define modernism in a regional context, especially with regard to climatic controls, we will see that even Architects like Corbusier, having come to India did respond to Indian climatic conditions.

And we see that in this, the Mill Owner's Association building in Ahmedabad by Corbusier where he provided these deep louvers at an angle of 45 degrees to cut out the sun from entering into the building. Now we have this is the Brise soliel of Corbusier versus the louvers of Antonin Raymond we discussed it earlier versus the jaali work of Joseph Allen Stein.

And all three of them are a climatic response to cut out the sun and allow the breeze to flow within the building. The reality is that Indian buildings were to operate in heat and dust, there was going to be poor maintenance and there was a need of cleaning and this was practical Indian realities of buildings had to address.

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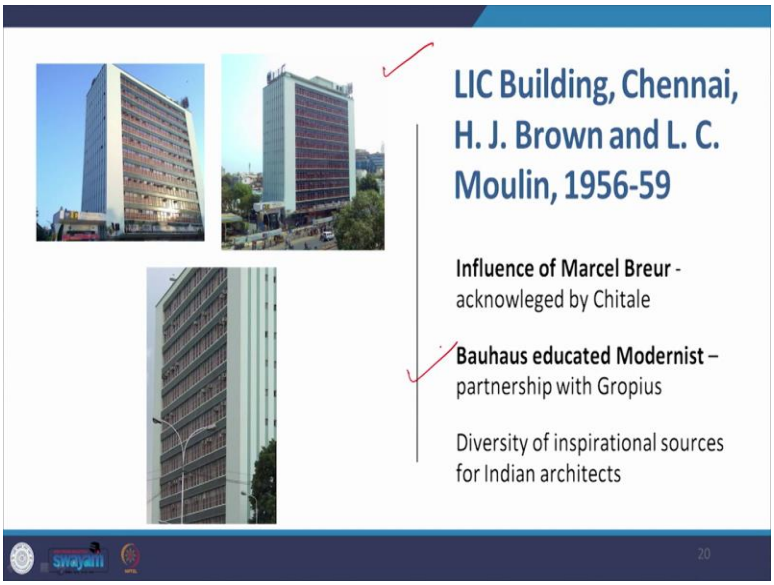

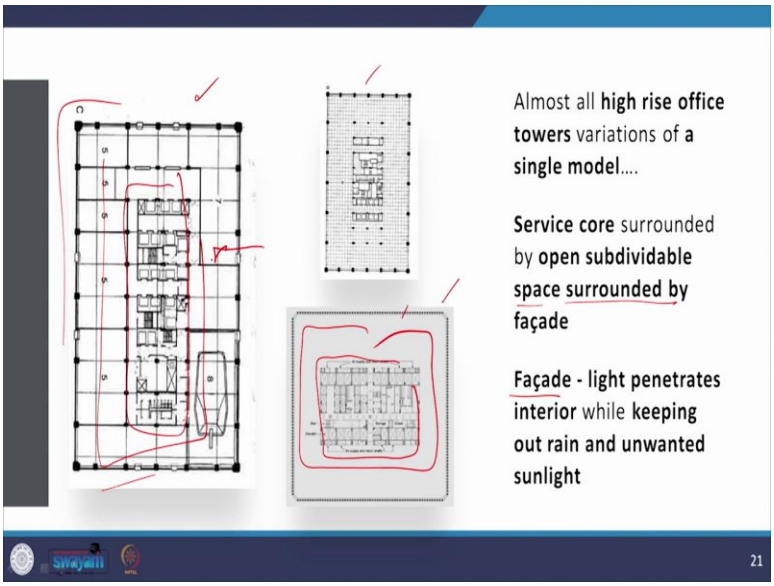

Now, let us look at the example of Kothari building by SL Chitale. In a architecturally not so popular city, in terms of the iconic buildings that have come up and that is Chennai now this building is a six storey frame structure in RCC on pile foundations, and thus we see that there is an advancement in the structures easily recognizable in this building. And the typical office floor plan has been used here in this building, which has got a central lift code for this indicates the economic realities of a tall building.

Now, Chitale had said that he is definitely he acknowledges the inspiration of Marcel Breur in this work, and this influence of Marcel Breur is also seen in the LIC building in Chennai by HG Brown and LC Moulin from 1956 to 1959.

Chitale acknowledges this influence. This building is not been designed by Breur. But his influence is seen, now Breur himself was a Bauhaus educated modernist who had partnered with Walter Gropius. Now, the diversity of inspirational sources that are available to Indian architects is evident with these examples.

Now to consider the tall building, particularly of that time, almost all high rise office towers were the variations of a single model. And that was that there is the service core at the center, having the elevators and the toilet facilities, et cetera. In this building, for example, in this in this, this is the World Trade Center that tragically came down in the 9 11 attack.

And this is the floor plan of the World Trade Center. And this also has this service score at the center, and then you have the floor all around it. So, the service core is surrounded by these open subdividable space. So, all these spaces all around it are subdividable into various office units. Because it is on grid design, it is a modular design. And this is having this facade all around it, and which is in glass, and light penetrates into the interiors, while keeping out the rain and unwanted sunlight.

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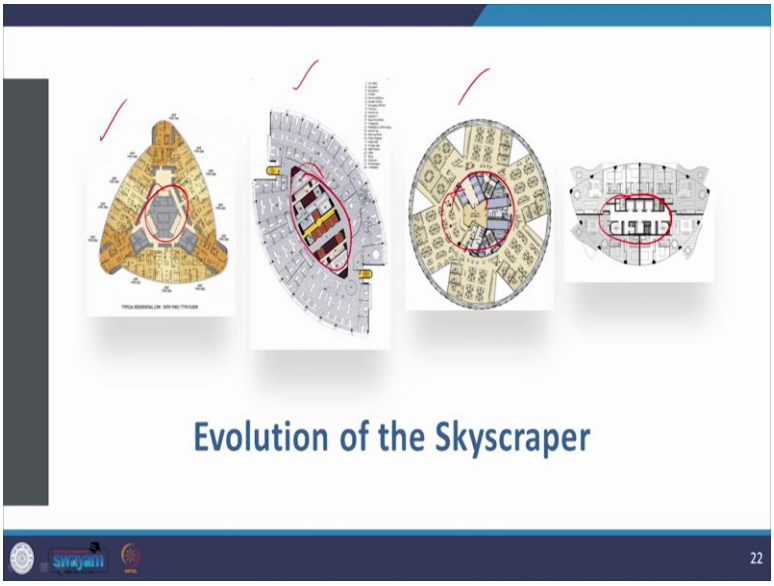

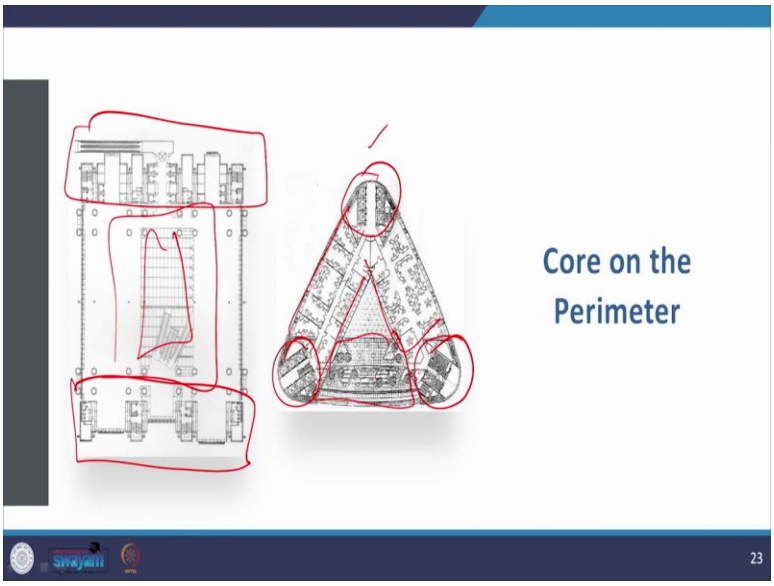

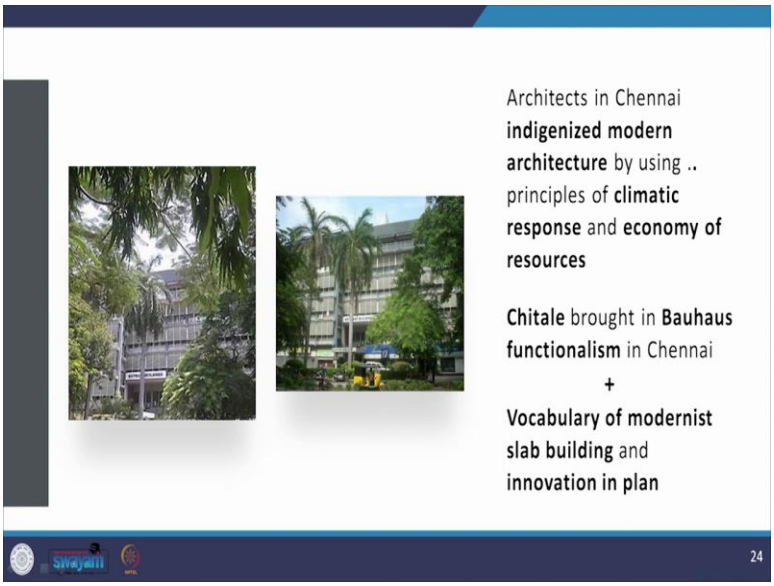

Now, this kind of form rather, this kind of concept of the central core has evolved over time as skyscraper forms evolve. So, the skyscraper does not continue to remain a cuboidal form, as we see here, but it evolves into a more of a triangular form or an elliptical form or a circular form. Within all these examples, you see that the core continues to remain at the center.

But this also has undergone a change, where Architects like Norman Foster have adopted variations of that, with the core being on the periphery, for example, in the case of HSBC, Hong Kong, and the floor being in the middle, and this also has an atrium. And then you have the example of the Commerce Bank in Frankfurt, where the core is at the vertices of this triangle.

So, these are the core areas and then you have got the floor plan here. And the third part of the Commerce Bank was a Sky Garden. And so the core is on the perimeter in these buildings. So, that variation has happened over time.

Now, architects in Chennai indigenized the modern architecture by using principles of climatic response and economy of resources. Chitale brought in Bauhaus functionalism in Chennai plus the vocabulary of modernist slab building and it had an innovative plan.

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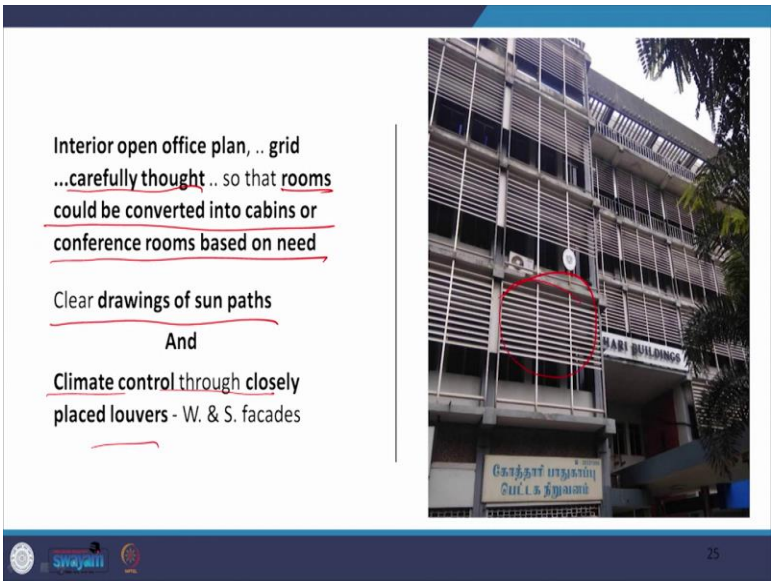

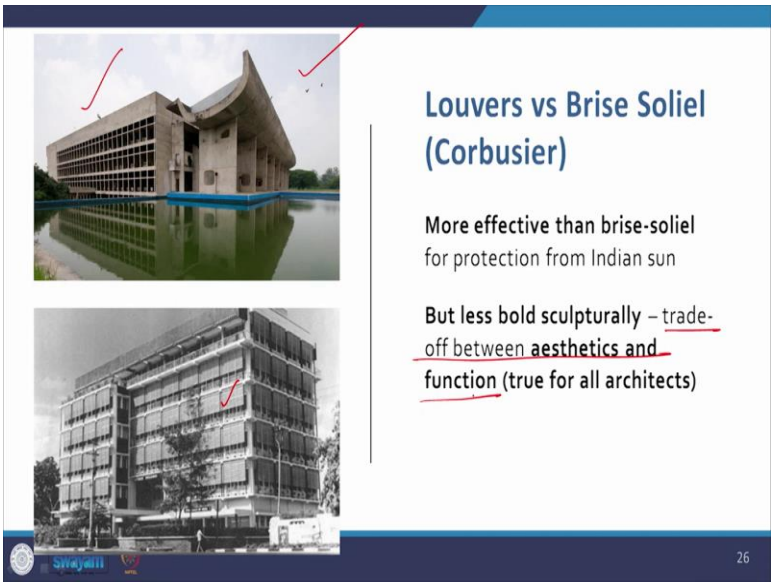

Now the office plan, interior was open office plan, it was on a standard grid as is true for all office buildings and is very carefully thought out because, so that the rooms could be converted into cabins or conference rooms based on the need also never clear drawings made for the sun paths. And climate control was done through these closely spaced horizontal louvers on the west and the south facades.

Now, louver versus Brise Soleil of Corbusier, we see the Brise Soleil in the Assembly Building in Chandigarh and we find that these louvers are more effective than the Brise Soleil for protection from the harsh Indian sun, but they are less bold sculpturally.

This Brise Soleil or sun breakers or louvers of Corbusier are more sculpturally bold and more they represent this, the building overall looks like a monumental building, so this Chitale building is actually a trade-off between aesthetics and function. And that is true for all architects. Whenever you design a building as an architect, you always have to trade off between the way the building looks, the aesthetic and the function of the building.

So, one or the other, would somehow dominate it would take a really rare piece of great architecture, where the three Vitruvian components of form function and structure are extremely balanced with each other.

Now when we come to louvers in contemporary Indian buildings, like the jaalis we saw in the buildings of morphogenesis and Sanjay Puri, there are buildings being done by Indian Architects like for example Sanjay Mehrotra, which are using louvers in contemporary Indian buildings.

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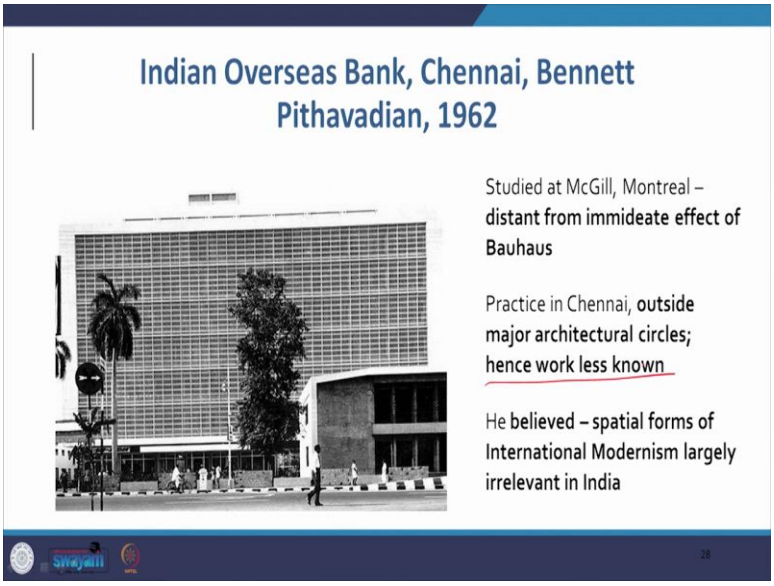

Now, then we have come to the other building in Chennai by Pithavadian Bennett, Pithavadian, called the Indian overseas bank in 1962, Pithavadian had studied at McGill University in Montreal. And this was distinct from the immediate impact of Bauhaus. And he practicing as it is, the architectural practice in Chennai was outside the major architectural circles of in circles of India, and hence the works of Chennai are usually less known.

But he believed in the spatial forms of international modernism were largely irrelevant for in India. Not they did not use them, too, in a certain manner. But he believed that this kind of spatial forms were not really well suited for India.

Now, he but he was still a modernist, that he absorbed the intellectual position of the modernists and Walter Gropius. But his functionalism that he adopted was based on Indian realities, just as many of the ideas of Chitale. Now his mentor was John Bland, and who was from Canada. And he had said that architecture is based on the definite, clear cut relationship between client and architect. And there is a very wonderful example of the work of CR Macintosh in Art Nouveau, where he designed a building called the Hill House.

And there, he had actually stayed with the client's family for about a week to try to understand their behavior and the way they use their house. So, that when he designed, this new house, a Hill House for them, he could then organize and plan that house, according to the way the family or the client used it. And that, to me, is a very good reflection of how an architect responds to the needs of the client.

And so, his Mentor John Bland ,defined his architecture, by the the definite relationship between the client and the architect. Now, these buildings are also related, ranging form to function, there is an openness of line, which is the fundamental principle of modernism.

But he instead of the horizontal loads of Chitale in this building, Pithavadian goes in for vertical louvers, and to give the shading from the sun without catching dust, the congested louver facade. The very closely spaced louvers, is also a recognition that the building as I said earlier, is to operate in the heat and dust of India.

There is going to be poor maintenance and more cleaning will be required, and therefore to prevent that dust from intruding into the building as much as it could and also to cut off the direct sunlight. This kind of a very dense louver mechanism was used by Pithavadian. And he also realized the limitations of the workmanship that were available in India.

So, he designed his buildings around the existing Indian realities. He was not the only one. Even Corbusier when he came to Chandigarh recognized Indian realities and designed his buildings accordingly. And from the next presentation, we will be looking at the works of Corbusier.

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Now the third example we see is again, a building by Joseph Allen Stein, the Indian Express building from 67 to 70, which is a different kind of tall building. We have already seen the works of Chitale and that work of Pithavadian. Now, this is different from the conventional tall building

that had already come up with the Seagram Building in 1951, I believe 1951, to 1955, I believe , this was designed by Mies van der Rohe.

And now the basic requirements of this Indian Express building was orientation. There was this intense Indian sunlight, but it also had a modernity of expression. But the aesthetics of the Indian Express building were not overriding the practicality. So, whereas the liver house, which is adjacent to the Seagram Building in New York, across the street, from the Seagram Building has this sleek glass facade, as also this glass and steel facade of Seagram Building.

The Indian Express building, though it has a modern glass and RCC facade, it also has these louvered balconies, so to speak, these louvers over the glass to protect the building from the harsh sun. So, again, the building has been modified to suit Indian climatic conditions.

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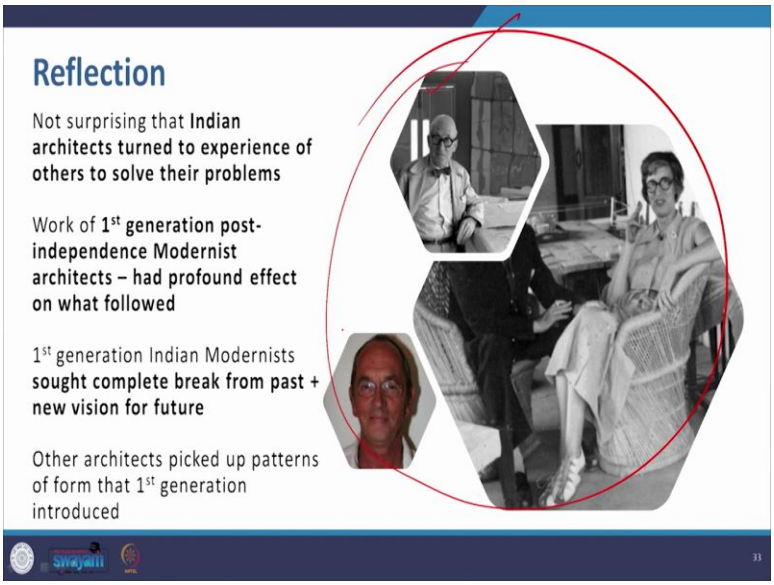

Now in India, there were the variations of the central theme of international modernism. But works of Gropius and international style exerted a very strong influence on modern Indian architecture, until the impact of Le Corbusier became widespread in the 1960s. But Gropius principles continue to motivate architectural works globally, not only in India, and they were based on clear logic, and they made and still make such sense in an appropriate context.

Now, if we just reflect on some of the things that we have seen, it is not surprising that Indian architects turn to the experience of others, predominantly international architects with a vast experience to solve their problems. The work of the first generation post-independence modernist architects had a profound effect on the architecture that would follow in India.

The first generation Indian modernist, sought to completely break away from the past and have a completely new vision for the future. And other architects picked up these patterns of form that the first generation architects had introduced. This is the team of the architects involved in Chandigarh Corbusier, and John Pierre Jeannerat, Maxwell Fry etcetera.

And so we come to the end of the first generation series with stating this that other architects that we would read about in the latest series would pick up from in these patterns only. But for a while, we will hold ourselves in this period when we look at the impact of Western architects in India. And with that, I am predominantly referring to Corbusier, Walter Gropius and Louis Kahn, two of them Corbusier, Louis Kahn actually worked in India. And we feel a very strong impact

of Walter Gropius is to the works of modern Indian architects in India post independence. Thank you.